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ABSTRACT

Using base year survey data from the National Longitudinal Study of the High School Class of 1972 and High School and Beyond, this report compares and contrasts the nation's seniors of 1972 and 1980. Over 1,600 seniors participated in the first study, approximately 28,000 in the second. Chapter I provides an introductory overview of educational, social, demographic, and economic trends and changes in American society. Chapter II compares the seniors with regard to school experiences (curricula, courses, extracurricular activities, and federally funded programs) and students' evaluations of teaching methods, their schools and their educations. Chapter III examines changes in levels of school performance as judged by verbal and mathematics tests, homework effort, and grade-point average. Chapter IV looks at self-perceptions, based on measures of locus of control and self esteem, and life and work values. Chapter V examines plans and aaspirations; short term plans; influence of school staff on plans; planned field of study in college; postsecondary occupational plans; and occupational goals. Appendix A contains nine tables of estimated changes by sex, race, socioeconomic status, test score, high school program, and geographic region. Appendix B discusses potential sources of error in the data. (BS)

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High School and Beyond

a national longitudinal study for the 1980's

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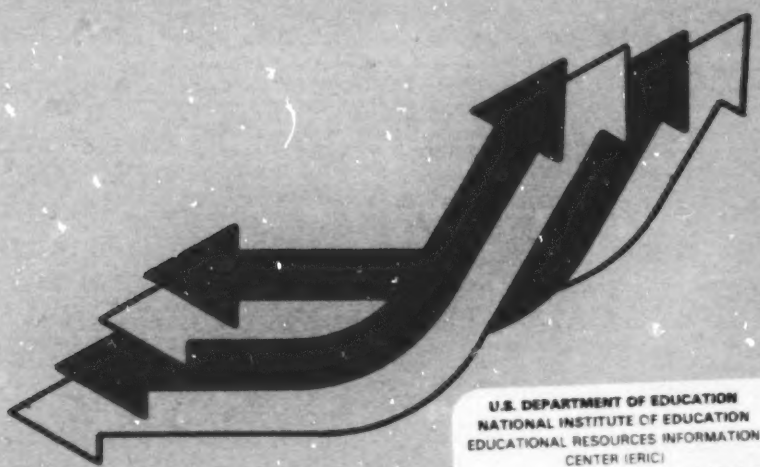

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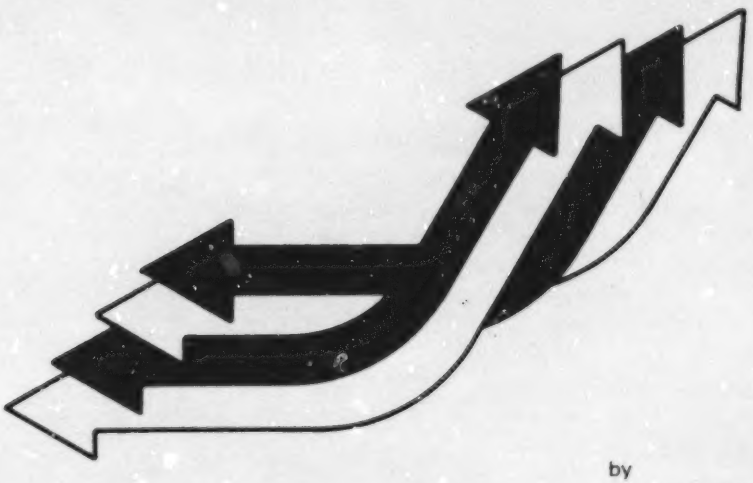

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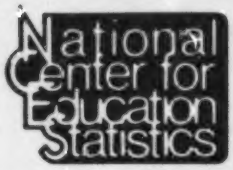

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TABLE OF CONTENTS

Foreword 1

Acknowledgments 3

Executive Summary 5

Chapter I. Introduction 7

Chapter II. School Experiences 11

Overview 11
High School Program 11
Academic Coursework 13
Educational Programs Supported by Federal Funds 15
Extracurricular Activities 15
Teaching Methods 16
Students' Evaluation of Their Education 17

Chapter III. School Performance 19

Overview 19
Verbal Skills 19
Mathematics Skills 20
Homework 20
Grade Average 21

Chapter IV. Student Self-Perceptions and Values 23

Overview 23
Locus of Control 23
Self-Esteem 24
Life Values 24
Work Values 25

Chapter V. Plans and Aspirations 27

Overview 27
Short-term Plans 27
Influence of School Staff on Plans 28
Planned Field of Study in College 29
Amount of Postsecondary Education Planned 31
Occupational Goals 31

Appendix A. Estimated Changes Between 1972 and 1980 by Sex, Race, Socioeconomic Status Quartile, Test Score Quartile, High School Program, and Geographic Region 33

Appendix B. Technical Notes 47

FOREWORD

The National Center for Education Statistics (NCES), with support from several other governmental agencies, initiated two studies of U.S. high school seniors: The National Longitudinal Study of the High School Class of 1972 (NLS-72) and High and School and Beyond (HS&B).[1] The NLS-72 base-year survey collected questionnaire and test data on a large national probability sample of 1972 seniors shortly before scheduled graduation. The HS&B base-year survey gathered similar information about the high school class of 1980.

This report describes differences between the classes of 1972 and 1980 with regard to school experiences, behavior, attitudes, problems, values, and plans. The data for 1972 and 1980 seniors also are analyzed to detect instances where the changes varied for subgroups of students defined by sex, race, socioeconomic status, academic achievement level, high school program, or region of the country.

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[1] The HS&B design includes a sophomore as well as a senior component.

ACKNOWLEDGMENTS

Many people and organizations have contributed generously to the design and implementation of the base-year surveys of the high school classes of 1972 and 1980. Unfortunately, it is not possible to mention the names of all those who helped plan and carry out the studies, and an apology is due to those whose names have been omitted.

Planning for the National Center for Education Statistics (NCES) program of longitudinal studies was initiated in 1970 by Dorothy M. Gilford (then Assistant Commissioner for Education), during a week-long conference of the country's top methodological experts and primary users of educational statistics. Prominent roles in the design of the 1972 study were played by Ezra Glaser, Richard M. Berry, Marjorie O. Chandler, Harold Nisselson, Elmer F. Collins, and Kenneth A. Tabler of NCES, a Federal data user's committee, an external advisory committee chaired by Robert L. Ebel (Michigan State University), and an advisory committee representing State data needs and interests, which was chaired by Thomas Kendig (Pennsylvania State Department of Education). Under the guidance of the project director, Thomas L. Hilton, the Educational Testing Service of Princeton, New Jersey, conducted the 1972 base-year survey after the Research Triangle Institute's pilot study of 1971. Bruce W. Thompson was the NCES project officer for the base-year survey. The current project officer is Andrew J. Kolstad.

The initial design of the 1980 study, High School and Beyond, was developed primarily by the Longitudinal Studies Branch, NCES. The Office of Bilingual Education and Minority Language Affairs, the Office for Civil Rights, the Office of Evaluation and Dissemination and other organizations contributed financial support and other assistance to the study.

Edith M. Huddleston, NCES project officer for the base-year survey, guided the study during its first several years. Samuel S. Peng served as project officer during the preparation of this report. The current project officer is William B. Fetters. James S. Coleman (principal investigator), Carol Stocking, (project director), Fansayde Calloway, Antoinette Delk, Larry Dornacker, Martin Frankel, and Natalie Suter of the National Opinion Research Center, contributed valuably to the design and implementation of the 1980 base-year survey.

Special thanks for their advice to NCES regarding all aspects of the HS&B base-year survey are due to John W. Meyer (Stanford University), Thomas L. Hilton (Educational Testing Service), and members of the National Planning Committee: Ellis B. Page, Chairman (Duke University), Robert F. Boruch (Northeastern University), Bruce K. Eckland (University of North Carolina, Chapel Hill), Barbara Heyns (New York University), David S. Mundel (Employment and Economic Policy Administration, City of Boston), Robert C. Nichols (State University of New York, Buffalo), Sally B. Pancrazio (Illinois Office of Education), and David E. Wiley (Northwestern University).

Studies of the scope and magnitude of NLS-72 and HS&B would not have been possible without the active cooperation of many persons at various levels of educational administration: Chief State School Officers, Catholic Archdioceses and other private school organizations, principals and teachers in the schools, and the students and their parents. The expertise, support, and persuasiveness of numerous study coordinators at participating schools was especially crucial to the successful conduct of the study. Those who will use these data for the study of American education are deeply indebted to all these people.

Finally, appreciation is due to Sindy S. McDowell, who so graciously and efficiently handled the word processing aspects of the report.

EXECUTIVE SUMMARY

The high school seniors of 1972 and those of 1980 were separated in time by 8 years. Thus at any given stage of development or schooling, the conditions and environments they faced, whether in school or out of school, were quite different. For example, unlike the class of 1980, the class of 1972 passed through elementary school before a variety of Federal programs to assist disadvantaged students (Title I, Head Start, etc.) were put in place. By the time the class of 1980 attended high school, educators and the public had become greatly concerned about (1) the erosion of educational standards—a weakening of the academic curriculum, grade inflation, social promotions, decline in student effort, continued decline in SAT and other test scores, (2) the academic competence of teachers, and (3) problems of truancy, lack of discipline, vandalism, and crime in school. In an attempt to correct some of these problems, the back-to-basics movement arose in the late 1970's along with implementation by some schools of competency-based requirements for promotion and graduation.

Outside of school, the world confronting youth also was changing at a fast pace: for example, youth unemployment was rising, the Vietnam war and the military draft ended, teenage pregnancy and suicide rates were increasing rapidly, the attitudes of women about working and choice of occupational field were changing, the population was shifting to the sun belt, and the percentage of youth living in one-parent homes was rising. The parents of 1980 seniors generally were more affluent and better educated than those of 1972 seniors. Programs of direct student aid for higher education, which had barely gotten underway in 1972, had increased manyfold by 1980.

What effect did these momentous changes have on American high school students? This report examines the differences between 1972 and 1980 seniors under the following headings: (a) school experiences, (b) school performance, (c) student self-perceptions and values, and (d) plans and aspirations. Some representative findings, based on student questionnaire responses and test scores, were:

School Experiences

- The percentage of seniors taking an academic curriculum declined—from 49 to 39 percent for males and from 43 to 38 percent for females.
- The typical 1980 senior had taken more mathematics courses, about the same number of science and English courses, but fewer foreign language and social studies courses than the typical 1972 senior. During this period, however, there was a sevenfold increase in the number of seniors who had taken high school remedial mathematics courses (from 4 to 30 percent) as well as a large increase for remedial English (from 6 to 31 percent). Thus the number of traditional or standard mathematics courses may not have increased.
- Participation in academically oriented extracurricular activities (school newspaper, subject matter clubs, student government, etc.) declined while participation in athletics, artistic activities, and hobby clubs increased.
- According to student reports, the use of student-centered discussions and project or lab work declined while the use of individualized instruction and computer assisted instruction increased.
- There was a sharp increase (from 50 to 72 percent) in seniors who thought their school should have placed more emphasis on basic academic subjects.
- The 1980 seniors also were more likely to feel that they had been hindered a great deal by poor study habits (up from 57 to 71 percent), were more likely to complain that courses had been too hard (up from 42 to 49 percent), and were more likely to think they had suffered a great deal from poor teaching (up from 50 to 60 percent).
- The 1980 seniors gave their schools higher marks than did 1972 seniors with regard to library facilities, teacher interest, and guidance counseling.

School Performance

School performance is gauged here by the scores students earned on verbal and mathematics tests, homework effort, and grade point average.

- Declines were observed in both verbal and mathematics test scores. The gap in average vocabulary and mathematics scores of white and minority-group students narrowed somewhat.
- The average amount of time spent on homework declined from 4.3 to 3.8 hours per week.
- Grade point average rose by .07 of a letter grade.

Student Self-Perceptions and Values

- The 1980 seniors were more likely than 1972 seniors to feel that their lives were largely controlled by events and circumstances over which they had little influence.
- The 1980 seniors tended to have higher self-esteem than did 1972 seniors. Also, a larger percentage (48 vs. 41 percent) thought they definitely "have the ability to complete college."
- The 1980 seniors placed much more importance on work-related values and living close to parents and less on correcting social and economic inequalities. The increases in "very important" ratings for work-oriented values were from 78 to 84 percent for finding steady work, from 84 to 88 percent for "success in my line of work," and from 18 to 32 percent in "having lots of money."

Plans and Aspirations

- The percentage of males planning academic college work immediately after graduation changed very little (from 46 to 44 percent), while the percentage of females increased (from 44 to 49 percent); and the number of males planning to work full-time rose from 25 to 32 percent, while the number of females planning this activity remained at 27 percent.
- Among those students who planned to attend college as their major activity, increasing percentages of students planned to enter the fields of business (up from 13 to 22 percent) and engineering or computer sciences (up from 7 to 14 percent), but fewer planned to pursue teacher training (down from 12 to 6 percent), mathematics and physical sciences (down from 5 to 3 percent), and certain other fields.
- The percentage of males who expected to end their education with a high school diploma or less increased from 15 to 21 percent while the percentage for females declined from 22 to 18 percent.
- With respect to occupational goals, the preference of young women for "male dominant" jobs (e.g., manager/administrator, technical, and proprietor/owner) doubled from 10 to 20 percent.

CHAPTER I

INTRODUCTION

In 1972, the National Center for Education Statistics (NCES) collected base-year data in its first major longitudinal study of high school seniors.[1] For this study, over 16,000 seniors in more than 1,000 public and private schools took tests and completed questionnaires about themselves and their plans for the future.

In 1980, NCES launched its second longitudinal study, High School and Beyond (HS&B). Base-year data were collected from approximately 28,000 seniors (and 30,000 sophomores) in 1,015 public and private high schools across the nation.

The 1972 study and the 1980 study are highly similar in general concept, purpose, and scope, although the latter study is more ambitious and complex.[2] Since both studies collected voluminous data on seniors, a unique opportunity is provided to compare and contrast the nation's seniors at two different points in time, 8 years apart.

There are many reasons for expecting differences between the two senior classes. They experienced different events during childhood and adolescence and also differ in demographic composition. The educational systems from which the two groups of students were emerging were different, the system of Federal Government support for postsecondary education had changed, and the social system of which they were products and into which they were entering had undergone significant modifications.

In recent years there has been considerable discussion both in the popular press and in the research literature about a decline in the educational achievement of American youth. In 1981, Secretary of Education T. H. Bell established a National Commission on Excellence in Education (NCEE) to examine our educational system, to review the major changes it has undergone during the past quarter century, and to make practical recommendations for improving its quality and excellence.

The official report of the NCEE,[3] as well as numerous other reports, a few of which will be briefly cited below, documents the message of the first paragraph of the NCEE report: "...the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people." Numerous indicators of a decline in the effectiveness of our educational system are cited in the Commission's report. The "College Entrance Examination Board's Scholastic Aptitude Tests (SAT) demonstrate a virtually unbroken decline from 1963 to 1980." Even more distressing is the fact that the total number of high school seniors earning very high scores (over 650) on the verbal and mathematics sections of the SAT has declined sharply.[4]

The supposed prevalence of grade inflation was confirmed in a study by Adelman[5] of high school tran-

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[1] The National Longitudinal Study of the High School Class of 1972 (NLS 72).
[2] See Appendix B for a more detailed account of differences between the two studies.
[3] *A Nation at Risk: The Imperative for Educational Reform, U.S. Department of Education*, National Commission on Excellence in Education, April 1983.
[4] *American Education, April 1981*, Vol. 17, No. 3. U.S. Department of Education.
[5] *Devaluation, Diffusion and the College Connection: A Study of High School Transcripts, 1966 - 1981* by Clifford Adelman, National Institute of Education, Final Draft: March 1983.

scripts. He found that grade inflation is significant but not as "pervasive as assumed, but is most noticeable in mathematics, science, and foreign language courses in the secondary schools."

Adelman also found evidence of a substantial shift in the distribution of high school credits—with academic courses showing a marked decline and personal development courses a marked increase.

According to numerous reports in the popular press, and confirmed by a study[1] for the National Science Teachers Association (NSTA), schools have been experiencing increasing difficulty in recruiting and retaining qualified teachers in mathematics and the physical sciences. This is believed to be a consequence of the growing demand for such personnel in the booming high technology industries and the high salaries they offer. Data reported in the NSTA study indicate that in 1981, 25 states reported a critical shortage of physics teachers, and 19 states reported a critical shortage of mathematics teachers. In 1980, the NSTA lost 1,000 of its 10,000 members.

The Government-sponsored National Assessment of Educational Progress (NAEP), in a recent report,[2] examined trends during the 1970's in reading, science, and mathematics achievement of 9-, 13-, and 17-year-old students. Their data for 17-year-olds showed statistically significant declines in both science and mathematics scores. These declines were greater for white students than for black students. It is particularly disturbing to note that students whose overall school performance put them in the highest quartile of achievement showed much greater declines than did the lowest quartile students.

Still another indication of declining school effectiveness is the fact that in recent years increasing numbers of college students have been judged in need of remedial instruction particularly in mathematics and/or basic writing skills. The NCEE report states that remedial mathematics courses in 4-year colleges now constitute one quarter of all mathematics courses taught in those institutions.

Between 1972 and 1980 there were also substantial changes in the system of Federal Government support for postsecondary education. In the earlier year, the Educational Amendments of 1972 had not yet gone into effect. Thus, seniors of 1972 could not have planned on the availability of Basic Educational Opportunity Grants (now called Pell grants) although the Guaranteed Student Loan Program, which was authorized in 1965, was available to both the 1972 and the 1980 graduates. In 1978, the Middle Income Student Assistance Act was passed which greatly liberalized the family-income criteria for student loan eligibility. As a result of all these changes in student financial aid opportunities, one could expect significant differences in the educational aspirations of 1972 and 1980 seniors.

Furthermore, many Federal programs (Title I, Head Start, etc.) that were initiated in the middle and late 1960's to aid economically and otherwise disadvantaged children were fully in place when the class of 1980 passed through elementary school, but were not available to the class of 1972.

While there has been concern in recent years about overworked teachers because of noninstructional chores and class sizes, there was actually a decline nationally in pupil-teacher ratio for public schools during the 1960's and 1970's. In their senior years, the secondary school pupil-teacher ratios were 13 percent lower for the class of 1980 than for the class of 1972 (16.8 vs. 19.3); and the elementary school pupil-teacher ratios were 17 percent lower when the class of 1980 was in 6th grade than when the class of 1972 was in that same grade (22.9 vs. 27.6).[3]

The American educational system has been undergoing a great number of changes during the past several decades both in student characteristics and in educational practice. The widespread use of court-ordered busing and "white flight" from large city schools have certainly affected the racial composition of many schools. The NCES longitudinal survey data show that the 1980 seniors had attended elementary schools that were less

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[1] *National Study of the Estimated Supply and Demand of Secondary Science and Mathematics Teachers* by T. G. Howe and J. A. Gerlovich, April 1982.

[2] *Reading, Science, and Mathematics Trends: A Closer Look* by Barbara J. Holmes, National Assessment of Educational Progress, Education Commission of the States, December 1982.

[3] *Projections of Education Statistics to 1990-91*, Vol. I, National Center for Education Statistics, U.S. Department of Education, March 1982.

segregated racially than those attended by the class of 1972.[1] Moreover, the class of 1980 contained considerably more black and Hispanic students than did the class of 1972 (an estimated 18 vs. 12 percent). In at least one respect, however, there was virtually no change between 1972 and 1980: the retention rate from 5th grade through high school graduation was about .75 in both years.[2]

The decade of the 1970's saw a shift of population to "sun-belt" States, and it is estimated that the percentage of seniors living in the West and South regions of the country rose from 43.4 percent in 1972 to 48.5 percent in 1980.

During the past decade there also have been many changes both in our society and our economy which might well have influenced the attitudes and behavior of our youth. U.S. Census data[3] indicate that one-parent families now constitute 21 percent of all families with children under 18, up from 10 percent in 1970. During the same period the number of one-parent families headed by an unwed mother increased fourfold. Also, the number of one-parent families headed by the father doubled, rising to 809,000 in 1980 or about 14 percent of all single-parent families.

Analyses of our data from 1972 and 1980 show that the general level of parental education was higher in the later year: 34 percent of the seniors in 1980 had fathers with some college education compared with 28 percent in 1972, and 28 percent of 1980 seniors had mothers with some college, compared with 21 percent in 1972. The material well-being of the 1980 seniors was also higher, as indicated by increases in the percentage who lived in a home with a dishwasher (from 32 to 57 percent) and in the percentage living in a house with two cars (from 76 to 85 percent). However, three possible indices of a concern for education declined between 1972 and 1980: (1) the percentage of seniors living in a home with a specific place to study (from 62 to 49); (2) the percentage living in a home subscribing to a daily newspaper (90 to 80); and (3) the percentage living in a home with a typewriter (82 to 78).

Women now participate in the labor force to a much greater extent than in the past. NCES data indicate that the percentage of seniors whose mothers worked full-time while they (the students) were in elementary school increased from 26 to 33 between 1972 and 1980. With respect to high school, the corresponding percentages were 37 and 46.

Members of the class of 1972 were born during the baby boom (modal birth year: 1954), while class of 1980 members were born after the baby boom. Thus the earlier cohort came from larger families and attended school during a period of rising enrollments; the latter attended school when enrollments had started to decline.

Many other economic, demographic, and societal events and trends occurred at different points during the development of these two high school classes. A partial list would include: the end of the Vietnam war and the military draft, the energy crisis, Watergate, and increasing incidence of drug and alcohol use, divorce, and illegitimacy.

This report can only describe, on the basis of survey data, how 1980 seniors differed from 1972 seniors. It cannot attempt to ascribe reasons for observed changes. The potential causes are so numerous and intertwined that it would be unwise to speculate much about causality.

Chapter 2 compares the two classes with regard to school experiences (curricula, courses, extracurricular activities, etc.) and students' evaluations of their schools and the educations they obtained.

Chapter 3 indicates how 1980 seniors fared on standardized cognitive tests vis-à-vis 1972 seniors, and contrasts the two classes with regard to course grades and homework effort.

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[1] Based on retrospective reports, the percentage of white students who attended all-white schools in 1st grade fell from 70 percent for the class of 1972 to 50 percent for the class of 1980. The percentage of black students who attended all-black schools fell from 66 to 37 percent.

[2] Based on the ratio, number of high school graduates in 1972 and 1980 to the number of pupils who entered 5th grade in fall 1964 and fall 1972. *Digest of Education Statistics*, National Center for Education Statistics, U.S. Department of Education, May 1982.

[3] U.S. Department of Commerce, Bureau of the Census, *Current Population Reports*, Series P-20, No. 371, Household and Family Characteristics, March 1981 (published May 1982).

Chapter 4 looks at differences between 1972 and 1980 seniors in value systems, self-concept, and extent to which they believe they control their own fate.

Chapter 5 examines trends in short- and long-range educational and occupational plans.

Appendix A presents and compares estimates of changes between 1972 and 1980 for various subgroups of students (males and females, white and minority-group seniors, etc.). Appendix B discusses potential sources of error in the data.

CHAPTER 2

SCHOOL EXPERIENCES

Overview

Erosion of academic standards of high schools and deterioration in quality of teaching and learning have been of great public concern in recent years. This chapter contrasts the high school experiences of 1980 and 1972 seniors. It also compares the two classes of seniors with regard to their assessments of their schools, their teachers, and the type and quality of schooling they received.

High School Program

Program placement (academic, vocational, or general) largely determines the kinds of courses students take and strongly influences the kinds of postsecondary education and occupational choices that will be open to them upon graduation. The percentage of seniors who considered themselves to be enrolled in an academic or college preparatory program declined[1] from 46.1 to 38.0 percent (table 2.1). This shift away from the academic curriculum was more pronounced for males (from 48.7 to 39.0 percent) than for females (from 43.5 to 38.4 percent) with the result that the proportions of males and females in the academic programs become roughly equal. For both sexes, participation in general programs increased by about 5 percentage points; while the percentage of females in vocational programs remained fairly steady from 1972 to 1980, participation of males in vocational programs increased by almost 5 percentage points.

Table 2.1. Percentages of 1972 and 1980 seniors in each high school program, by sex[a]

High school Program	All students		Males		Females	
	1972	1980	1972	1980	1972	1980
Total	100.0	100.0	100.0	100.0	100.0	100.0
Academic	46.1	38.0	48.7	39.0	43.5	38.4
General	31.7	37.2	33.0	38.0	30.4	35.9
Vocational:	(22.2)	(24.8)	(18.3)	(23.0)	(26.1)	(25.7)
Agricultural	1.4	2.8	2.4	3.9	0.4	1.6
Business or office	11.1	9.7	2.8	3.3	19.4	15.7
Distributive	2.3	2.1	2.6	1.9	2.0	2.3
Health	0.8	1.1	0.3	0.4	1.4	1.7
Home economics	0.9	1.3	0.1	0.4	1.8	2.1
Trade or industrial[b]	5.6	7.7	10.0	13.0	1.2	2.3

[a] Not all students identified themselves by sex.
[b] Includes a category called "technical" offered as an answer choice in 1980 but not in 1972.
Note.—Details may not add to totals because of rounding.

The distribution by program of minority-group[2] members (not tabled) remained fairly stable from 1972 to 1980 at 32 percent academic, 37 percent general, and 31 percent vocational. Thus the change observed

[1] All statistics in this report are weighted estimates based on sample surveys. The 1972 to 1980 trends cited in the text, unless otherwise indicated, are significantly different from zero at the .01 or higher probability level (two-tailed test). (See Appendix B for a more extensive discussion of this point.)
[2] Hispanic students were classified as minority-group youth regardless of their racial identity.

nationally was due to a shift in the distribution for white students—academic program enrollment dropping from 49 to 40 percent, while general programs enrollment increased from 30 to 37 percent, and vocational program enrollment increased slightly from 21 to 23 percent.

The shifts in enrollment distributions between 1972 and 1980 were about the same size in the South and West regions, where academic enrollment dropped from 39 to 33 percent,[1] as in the remainder of the country, which experienced a drop from 51 to 42 percent. The distributional shifts were fairly uniform for students of all socioeconomic status (SES) levels[2] and all academic performance levels. For example, the academic program percentage fell from 26 to 21 for students in the lowest SES quartile and from 68 to 62 for those in the top SES quartile, from 17 to 14 for those in the lowest test score quartile[3] and from 77 to 72 for seniors in the medium test score quartiles.

The channeling of females into certain occupational areas and males into others begins well before high school graduation. Sex differences are quite noticeable in the type of vocational program taken during high school (table 2.1); and as will be seen in subsequent sections of the report, in occupational values, occupational goals, and planned fields of study in college.

The vocational program is divided into six major occupational areas for these surveys, three of which in 1972 contained relatively more males than females (agricultural, distributive,[4] and trade or industrial). The percentage of females enrolled in the remaining three occupational areas (business or office, health, and home economics) was higher than that of males. The trend from 1972 to 1980 was toward the traditionally male areas (from 9.3 to 12.6 percent of all seniors). Moreover, the gender gap narrowed for each of these two sets of vocational occupational areas.

Table 2.2. shows that for male-dominant areas, the ratio of the male to female percentages fell from 4.2:1 in 1972 to 3.1:1 in 1980. For female-dominant areas the ratio of females to males fell from 6.6:1 to 4.8:1. Thus the early sorting by gender into vocational occupational areas, though still substantial in 1980, was less than it had been 8 years earlier.

Table 2.2. Percentages of all 1972 and 1980 seniors in male-dominant and female-dominant vocational programs, by sex

Vocational occupational area sex category	All students		Males		Females	
	1972	1980	1972	1980	1972	1980
Male-dominant (1972)	9.3	12.6	15.0	18.8	3.6	6.1
Female-dominant (1972)	12.8	12.1	3.4	4.1	22.6	19.5

[1] States were classified into two categories with those in the Northeast and North Central regions in one group and those in the South and West in the other group. Standard Bureau of the Census definitions of regions were employed.

[2] Students were classified into one of three socioeconomic status (SES) levels (low, medium and high) based on an index formed from five equally weighted components: father's education, mother's education, family income, father's occupation, and household possessions. This classification was performed separately and independently for each of the two surveys.

[3] Students were classified into one of three test score levels (low, medium, and high) based on a composite index formed from their scores on various tests administered as part of the NLS-72 and HS&B surveys. This classification was performed separately and independently for each of the two surveys.

[4] Distributive education includes various combinations of subject matter and learning experiences related to the performance of activities that direct the flow of goods and services, including their appropriate utilization, from the producer to the consumer or user, e.g. retail sales.

Academic Coursework[1]

The average number of mathematics courses taken increased by 10 percent from 1972 to 1980 (3.7 to 4.1 semesters) but the average number of foreign language courses declined (2.1 to 1.6 semesters)[2] as did the average number of social studies courses (5.4 to 4.7 semesters) (table 2.3). There was little overall change from 1972 to 1980 in the amount of science and English taken—almost 3.5 semesters of science and slightly over 6 semesters of English in both years. (Except for science these trends are in broad agreement with the trends in years of study 1973-1981, found by Adelman, *op. cit.*) The total number of semesters of work in these five academic subject areas dropped by almost a full semester during this period (from 20.8 to 19.9 semesters). This drop is consistent with the previously mentioned finding of a decline in enrollment in the academic curriculum.

Table 2.3. Mean number of semesters taken in five academic areas in the 10th through 12th grades and percentages of seniors who took at least 6 semesters: 1972 and 1980 seniors

Subject	Mean no. of semesters				At least 6 semesters (percent)	
	1972	1980	Change	Percent Change	1972	1980
Total	20.78	19.88	−.90	(−4)	-	-
Mathematics	3.73	4.12	.39	(10)	28.6	33.2
Science	3.46	3.44	−.02	(−1)	21.6	22.1
English	6.16	6.03	−.13	(−2)	84.7	80.9
Foreign languages	2.06	1.63	−.43	(−21)	11.8	8.4
Social studies	5.37	4.66	−.71	(−13)	55.6	39.2

Note.—Details may not add to totals because of rounding.

The picture of increasing mathematics enrollment is not as encouraging as it may seem. Not shown in the table is the fact that the number of seniors who had taken remedial mathematics in high school increased sevenfold, from 4 to 30 percent.[3] Thus it appears very unlikely that the average number of traditional or standard mathematics courses taken increased at all. Similarly, the picture regarding English coursework seems even worse when one takes into account the increase from 6 to 31 percent in the number of seniors who had taken remedial English courses during high school.

[1] Questions regarding the cumulative amount of coursework taken in the 10th through 12 grades were asked in somewhat different ways in the two studies. In NLS-72, the survey administrator (or the administrator's representative) answered the question based on an examination of school records, whereas in HS&B the student provided the answers. Thus, the conclusion that observed changes reflect true changes is more tenuous for coursework taken than for items asked in identical ways and answered by the student at both points in time. The NLS-72 item was worded: "How many semester courses will the student have taken in each of the following subjects between July 1, 1969, and the date he or she graduates?" The types of courses listed included: science, foreign languages, social studies, English, and mathematics. The administrator was asked to write in the "total number of semesters of instruction" for each type of course. For this analysis, zeros were imputed for blanks if a non-zero response was given for at least one course area. The HS&B item was worded: "Starting with the beginning of the *tenth* grade and through the end of this school year how much coursework will you have taken in each of the following subjects?" Among the subjects listed are: mathematics; English or literature; French, German, Spanish; history or social studies; and science. Students could mark answers in columns labeled "None" through "More than 3 years" or any half-year interval between these extremes. Zeros were imputed for blanks if a non-zero response was given for mathematics and English or literature. The values for French, German, and Spanish were added to get a foreign language value. For both NLS-72 and HS&B, answers of more than 3 years were coded as 7.8 semesters.

[2] The decline in foreign language coursework is somewhat overstated because the 1980 figure includes only French, German, and Spanish. These three languages, however, account for 91 percent of the total units earned by high school students in all foreign languages (unpublished data from high school transcripts collected in 1982 from a subsample of the HS&B sophomore cohort).

[3] These estimates are based on NLS-72 survey administrators' responses regarding whether the student had received remedial instruction and HS&B student responses to a question regarding whether the student ever had taken a remedial (sometimes called basic or essential) course or program in high school.

The sizes of the trends showed some variation by sex, race, socioeconomic status (SES), or academic ability for all subject areas except English (table A.1).

Sex

The differences between males and females in number of mathematics courses taken declined from .8 (4.1-3.3) to .5 (4.4-3.9) semester. For science courses, the difference dropped from .6 to .4. In both fields, males continued to predominate. With respect to the other academic subjects, the pattern of change was much the same for both sexes. Nevertheless, because of the substantial sex difference in mathematics and science trends, the total amount of academic coursework in the five subjects examined showed a greater decline for males (1.1 semesters) than for females (.5 semester).

Race

In 1972, whites exceeded minority-group members in number of mathematics courses taken (3.8 vs. 3.4), a difference of .4 semester. In 1980, minority groups exceeded whites (4.2 vs. 4.1), a difference of .1 semester. Thus, minority groups improved their situation relative to whites by .5 semester (from being .4 semester behind to being .1 semester ahead). Similarly, minority groups improved their situation relative to whites by .3 semester in science and .6 semester in foreign languages. In 1980, minority groups actually were taking .2 semester more mathematics[1] than whites and the same amount of foreign languages. If courses taken in all five subject areas are added together, we find that the total for minority groups actually increased (from 19.5 to 19.7 semesters) while the total for whites declined by over a full semester (from 21.1 to 19.9 semesters).

Socioeconomic Status (SES)

The gap between low and high SES seniors increased for science and social studies, but decreased for foreign languages.

Academic Ability

The difference between seniors in the upper and lower quartiles in academic ability declined with respect to number of mathematics courses taken (by .5 semester) and number of foreign language courses taken (by .8 semester), but increased with respect to number of social studies courses taken (by .3 semester).

High School Program

The gap in amount of coursework taken by academic and non-academic program seniors narrowed by .3 semester for mathematics and by .5 semester for foreign languages, but widened by .2 semester for social studies. Thus, insofar as mathematics and foreign languages are concerned, there was not as great a difference between academic and non-academic programs in 1980 as there had been in 1972.

[1] Much of the mathematics taken by minority-group 1980 seniors, however, tended to be remedial or basic rather than intermediate or advanced. For example, HS&B student questionnaire data show that a larger proportion of black than white seniors had taken remedial mathematics (34 vs. 29 percent), but smaller proportions had taken geometry (41 vs. 60 percent), trigonometry (14 vs. 29 percent), or calculus (3 vs. 10 percent).

Educational Programs Supported by Federal Funds

Higher proportions of 1980 than of 1972 seniors participated in four high school programs that were partially supported by Federal funds; and for two of the four, proportionately more 1980 seniors had heard of the programs even though they had not participated (table 2.4). The upward trend in participation rates was essentially the same for all categories of students (not shown in tables).

Table 2.4. Percentages of 1972 and 1980 seniors who were acquainted with and/or had participated in each of four Federally supported high school programs[a]

Response	High School Vocational Education Work-study Program		Cooperative Vocational Education Program		Talent Search		Upward Bound	
	1972	1980	1972	1980	1972	1980	1972	1980
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never heard of program	36.2	29.6	46.3	38.8	75.1	74.6	75.3	74.3
Heard of program								
Have not participated	54.1	57.1	46.4	50.6	23.2	22.4	23.9	24.3
Participated	9.7	13.3	7.3	10.6	1.7	3.0	0.8	1.4
t (participation)[b]	11.6		11.7		8.4		5.8	

[a] Each of these programs was established during the period 1965-70.
[b] See footnote "a" to table A-1.
Note.—Details may not add to totals because of rounding.

Extracurricular Activities

The 1980 seniors did not participate quite as much as the 1972 seniors in "intellectual" activities; i.e., journalistic-type activities (school newspaper, yearbook, etc.), subject-matter clubs (science, language, etc.), and student government (table 2.5). On the other hand, they participated more heavily in athletics, hobby clubs, vocational education clubs, and a category of activities which included debating, drama, band, and chorus. The increased level of participation in athlevics and hobby clubs was substantial. Also, relatively more 1980 seniors participated in honorary clubs. Finally, there was a decline in the primarily female activity of "Cheerleader, pep club, majorette."

In 1972, Congress passed the Educational Amendments, Title IX, which prohibits sex discrimination in schools receiving Federal money. Since the passage of Title IX, the rate of participation of young women in high school athletics has grown from 32 to 41 percent in 1980 while the rate for young men went from 58 to 64 percent. (See footnote "a" to table 2.5, however, regarding a problem of comparability of 1972 and 1980 data.)

The data for participating as a leader or officer reveal a very interesting situation. The estimated percentage of students who consider themselves to be leaders or officers is higher for 1980 than for 1972 for every one of the nine activity areas, even for those four which experienced a decline in overall participation rates.

Table 2.5. Percentages of 1972 and 1980 seniors who participated in or had served as leader or officer in specified extracurricular activities

Activity	Participated (percent)		Leader/officer (percent)	
	1972	1980	1972	1980
Athletics[a]	44.9	51.8	10.0	18.4
Cheerleader, pep club, majorette	17.3	15.0	4.0	4.4
Debating, drama, band, chorus[b]	33.1	36.4	6.3	10.0
Honorary clubs (e.g., Beta Club, National Honor Society)	14.4	16.9	2.3	3.0
Hobby clubs	18.8	25.8	2.3	2.8
School newspaper, magazine, yearbook, annual	20.2	19.7	5.2	5.5
School subject-matter clubs	25.6	23.9	4.0	4.6
Student council/government, political club	19.4	18.4	6.3	7.0
Vocational education clubs	22.3	23.2	5.9	7.0

[a] In NLS-72, there was one item, "Athletic teams, intramurals, letterman's club, sports club." In HS&B, there were two items, "Varsity athletic teams" and "Other athletic teams—in or out of school."
[b] In NLS-72, there was one item, "Debating, drama, band, chorus;" in HS&B there were three: "Debating or drama," "Band or orchestra," and "Chorus or dance." Thus the 1980 percentages may be somewhat overstated relative to the 1972 percentages.

Teaching Methods

According to students' reports, and as shown in table 2.6, there has been little overall change in the extent of use of the two most commonly employed instructional methods: lecturing by the teacher and having students write essays, themes, etc.[1] There has been a decline, however, in usage of the other two commonly employed traditional methods: student-centered discussions and project or laboratory work.[2] On the other hand, there has been an increased employment of individualized instruction, and a jump in use of the relatively new techniques of machine- or computer-assisted instruction.

Table 2.6. Mean frequency-of-use scores of instructional methods employed in courses taken in senior year: 1972 and 1980[a]

Method	Pooled standard deviation	Mean		Change	t value[b]
		1972	1980		
Listening to the teachers' lecture	24.7	75.4	75.7	0.3	1.2
Writing essays, themes, poetry, or stories	29.7	61.6	60.7	−0.9	3.0
Participating in student-centered discussions	27.0	57.8	55.7	−2.1	7.8
Working on a project or in a laboratory	32.7	49.4	45.6	−3.8	11.6
Having individualized instruction	28.8	32.6	36.3	3.7	12.8
Using teaching machines, or computer-assisted instructions	28.6	15.8	20.7	4.9	17.1

[a] The response choices "Never," "Seldom," "Fairly often," and "Frequently" were coded zero, 33.3, 66.7, and 100, respectively.
[b] See footnote "a" to table A-1.

[1] However, as will be discussed later, there were some changes for certain subgroups of students.

[2] These findings are consistent with those recently reported by John I. Goodlad in "A Study of Schooling: Some Findings and Hypotheses," *Phi Delta Kappan*, March 1983, pp. 465-470.

In three instances, the trends just described did not hold for certain subgroups. First, the trend in use of writing essays, themes, etc., varied positively with SES; the higher the student's SES, the greater the tendency toward increased use of writing.

Year	SES		
	Low	Middle	High
1980	55.3	59.6	69.4
1972	58.9	61.0	65.6
Difference	−3.6	−1.4	3.8
	t (unadjusted) = 6.7[1]		

Second, project or laboratory work declined more for young women than for young men. (This seems somewhat surprising in light of the finding in section 2.3 that between 1972 and 1980 there was some convergence in the number of science courses taken by young men and women.)

Year	Sex	
	Male	Female
1980	47.8	43.9
1972	49.0	49.8
Difference	−1.2	−5.9
	t (unadjusted) = 6.5	

Finally, the trend in teacher lecturing was upward for high-scoring students, but slightly downward for low-scoring ones.

Year	Achievement test level		
	Low	Middle	High
1980	69.5	75.3	83.7
1972	70.8	75.3	79.7
Difference	−1.3	0.0	4.0
	t (unadjusted) = 5.2[1]		

Students' Evaluations of their Education

As shown in table 2.7 three questions were employed to obtain student evaluations of their schools, their teachers, and the quality of their education. Each question had a number of sub-items—a total of 13 sub-items in all.

The largest change observed was an increase from 50 to 72 in the percent of students who felt that their school "should have placed more emphasis on basic academic subjects (mathematics, science, English, etc.)." (See table 2.7.)

The percentage of seniors who felt that "poor study habits" had interfered with their education also increased substantially (from 57 to 71 percent). More seniors in 1980 than in 1972 felt that their education had suffered due to "poor teaching" (up from 50 to 60 percent) and courses being "too hard" (up from 42 to 49 percent). The 1980 seniors were also more critical of their schools with regard to "condition of buildings and classrooms," and placing insufficient "emphasis on vocational and technical programs." Moreover, they were more critical than were the 1972 seniors of their school's "reputation in the community."

[1] Based on a contrast of the extreme groups (i.e., low vs. high).

Table 2.7. Percentages of students who evaluated their schools and their education in specified ways: 1972 and 1980 seniors

Question and item	Percentage	
	1972	1980
A. "How much do you agree with the following statements about your high school?" (percentage "Agree strongly" or "Agree somewhat")*		
1. School should have placed more emphasis on basic academic subjects	50.2	71.8
2. School should have placed more emphasis on vocational and technical programs	71.2	75.4
3. School did not offer enough practical work experience	67.4	64.2
4. School provided me counseling helpful for continuing my education	62.7	66.0
5. School provide me counseling helpful in finding employment	37.7	49.2
B. "Please rate your school on each of the following aspects." (percentage "Excellent" or "Good")		
1. Reputation in the community	70.3	65.9
2. Condition of buildings and classrooms	68.6	33.2
3. Quality of academic instruction	61.1	60.5
4. Library facilities	63.2	66.9
5. Teacher interest in students	50.8	54.2
C. "How much has each of the following interfered with your education in this school?" (percentage "A great deal" or "Somewhat")		
1. Poor study habits	57.4	71.0
2. Poor teaching	50.1	60.2
3. Courses are too hard	42.2	49.3

* Calculations are adjusted to exclude seniors who answered, "Does not apply."

However, 1980 seniors viewed their schools in a more favorable light than did 1972 seniors with regard to "library facilities," "teacher interest in students," providing "counseling helpful for continuing my education," and providing "counseling helpful in finding employment." With respect to the last named item, the increase was quite large (from 38 to 49 percent).

Thus, while 1980 seniors gave their schools higher marks than did the 1972 seniors with respect to library facilities, teacher interest, and counseling, they were more critical or negative with regard to curriculum emphasis,[1] quality of teaching, condition of buildings, and even their school's reputation. They also were more inclined to feel they had poor study habits. Despite the trend away from academic curriculum and coursework, more 1980 seniors complained that their courses were too hard.

The size and even the direction of some of the trends varied for different kinds of students (tables A.2, A.3, and A.4). For example, criticism of schools for insufficient emphasis on basic academic subjects increased more for high than for low academic ability students (16 vs. 8 percentage points). On the other hand, concern about inadequate stress on vocational subjects and insufficient practical work experience declined for high academic ability seniors (by 3 and 7 points, respectively), but rose for those with low academic ability (by 6 and 4 points, respectively).

[1] The 1980 seniors were more critical of school curriculum mainly for too little stress on basic academic subjects, but also to a lesser degree for too little emphasis on vocational and technical programs. This may be a reflection of the trend for increasing numbers of students to be in the general program track, which places more emphasis on courses oriented toward personal development.

CHAPTER 3

SCHOOL PERFORMANCE

Overview

Performance on standardized ability or achievement tests is a good predictor of who goes to college and how well they do there; and any marked changes in test score levels may have a profound effect not only on who attends and succeeds in college but on other life outcomes.[1] Even for noncollege youth, mastery of basic verbal and mathematical skills is considered by employers to be important for sucessful performance in most entry-level jobs and may even be a determining factor in being hired for such jobs. Thus educators, employers, and the public became increasingly concerned during the 1970's by evidence of declining high school test scores. The most widely publicized cognitive test scores are those of the College Entrance Examination Board's Scholastic Aptitude Test (SAT). The mean SAT verbal score nationwide fell from 453 to 424 (about one-quarter of a standard deviation) between 1972 and 1980, and the mean SAT mathematics score dropped from 484 to 466 (about one-seventh of a standard deviation) during this same period.[2] Of equal concern is the decline in the absolute number of students with very high scores.

Criticism of the academic standards of high schools also grew during this period. It was perceived by many that schools were not only providing a less rigorous academic curriculum, but also were requiring less homework and were applying easier grading standards; and by so doing, schools may have unintentionally led students to believe that excellence is not valued or at least that it is easily attained.

This chapter of the report examines data from the two longitudinal studies for evidence of changes in levels of school performance as judged by scores on verbal and mathematics tests,[3] homework effort, and grade-point average.

Verbal Skills

The same 15-item, 5-minute, vocabulary test and the same 20-item, 5-passage, 15-minute reading test were given to 1972 and 1980 seniors. The mean test score fell by one-fifth of a standard deviation over the 8-year period for each of these two verbal tests (table A.5).[4] This is a substantively as well as a statistically significant decline. The decline in vocabulary scores (but not reading scores) was only about one-third as large for minority-group students as it was for white students. Moreover, the estimated decline in vocabulary scores but not reading scores) was less than one-half as large for students from low SES backgrounds as for those from high SES backgrounds.

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[1] "College Entrance Examination Trends" by Bruce K. Eckland in *The Rise and Fall of Test Scores* (G. Austin and H. Garber, eds.), New York: Academic Press, 1982.

[2] *National Report, College-Bound Seniors 1980*, College Entrance Examination Board.

[3] In addition, two tests of non-academic skills were administered both in 1972 and 1980. Because of changes in the administrative procedures used with these tests at the two time periods, the ostensibly large score gains in these tests are suspect and will not be discussed in this report. An analysis of the data for these two tests is available upon request from NCES.

[4] The percentage of seniors who completed questionnaires but did not take tests was more than twice as large for HS&B as for NLS-72 (table B-1). The students who did not take the tests tended to make slightly poorer school grades than those who took them (table B-2). Consequently, the magnitudes of the estimated downward trends in verbal and mathematics scores may be somewhat understated.

Mathematics Skills

Each group of seniors was given a 25-question, 15-minute mathematics test that measured ability to solve reasoning problems involving quantitative comparisons but not involving algebraic, geometric, or trignometric skills. Eighteen of the items were identical or virtually identical[1] on the two tests. The mean score on the 18 common items fell by one-sixth of a standard deviation (table A-5). Thus the declines of one-fifth standard deviation in verbal and one-sixth standard deviation in mathematics observed in this study are about the same sizes as the declines in SAT scores (one-quarter and one-seventh standard deviation, respectively) from 1972 to 1980.

It is interesting to note that the gap in average mathematics scores between white and minority-group students narrowed from 1.00 to 0.85 standard deviation.[2] Also, the superiority in mean scores of the Northeast and North Central regions over the South and West declined from .24 to .09 standard deviation.

There is no evidence of a reduction in the size of the gap in mathematics (or reading) scores between low SES and high SES seniors.

Homework

The average amount of time per week spent on homework (according to the seniors' self reports) fell from 4.26 to 3.85 hours or by 25 minutes (table A-5). In 1972, 35.2 percent of seniors spent at least 5 hours per week on homework, but in 1980 the corresponding percentage was only 24.5 (table 3.1).

When the time-on-homework data were analyzed separately by region of the country, all four regions showed significant and substantial declines, although the decline was most dramatic in the South, where the percentage of those who spent 5 or more hours per week on homework dropped from 36 to 21 percent (not shown in table).

While 1980 senior females still spent more hours than males on homework (table A-5), the gap was only about one-half as great as in 1972 (.71 vs. 1.34 hours per week). The size of the trend also varied appreciably by race, socioeconomic status, achievement level, and high school program. Homework effort rose by 0.5 hour per week for minority-group students while falling by 0.4 hour per week for white students. Time on homework also rose slightly (.1 hour per week) for high SES students, but fell (by .7 hour per week) for low SES students. The pattern by test score level was one of virtually no change for those in the top quartile, but a drop of about .5 hour per week for others.

Table 3.1. Percentage distribution of students who spent specific amounts time on homework: 1972 and 1980 seniors

Year	Homework (hours per week)				
	Total	None	1 - 5	5 - 10	Over 10
1980	100.0	7.7	67.8	18.1	6.4
1972	100.0	11.0	53.8	29.7	5.5

Finally, the amount of homework effort by academic program students remained virtually constant at 5.1 hours per week, while that for non-academic program students fell by .5 hour per week, from 3.6 to 3.1.

[1] Twelve of the items were identical and six were the same except for minor changes such as feet to meters.

[2] In Chapter Two, Academic Coursework, it was pointed out that, by 1980, minority-group students were actually taking more semesters of mathematics than were white students.

Grade Average

The mean high school grade average of seniors rose between 1972 and 1980 by .07 of a letter grade—from 2.78 to 2.85 on a scale where A = 4, B = 3, C = 2, and D = 1 (table A.5). The increase in grade average was greater for academic than for non-academic program students (.16 vs .08). While the increases in grade averages may seem small, they are substantively important, as well as statistically highly significant. They occurred during a period when both test scores and homework effort declined; and the gap in grade averages between those in the lowest and highest test score quartiles was only .94 of a letter grade.

The proportion of seniors who received mostly A grades increased between 1972 and 1980 by one-third, from 8.9 to 11.8 percent (table 3.2).

Table 3.2. High school grade averages: 1972 and 1980 seniors (percentage distribution of students)

Year	Total	Grade average							
		A	B+	B	C+	C	D+	D	D-,F
1980	100.0	11.8	20.7	20.9	26.3	13.6	5.6	0.9	0.2
1972	100.0	8.9	19.4	20.9	28.5	14.6	6.5	1.0	0.2

CHAPTER 4

STUDENT SELF-PERCEPTIONS AND VALUES

Overview

This chapter presents information on trends in "locus of control" (i.e., the extent to which a person perceives himself or herself to be in control of environmental events or at the mercy of external forces), self-esteem, and life and work values. The formation of a positive self-image, the development of appreciation for continuing self-development, and the acquisition of socially desirable attitudes and values are seen by many educators as appropriate goals or performance objectives for schools. The senior's outlook on life may have significant consequences on academic achievement, goal setting, persistence in working toward goals, citizenship, acceptance of leadership roles, and in general, occupational and life orientations.

Locus of Control

Persons are considered to be "internal" if they believe that they have control over their environment and the ability to influence the course of their own lives, which may include attempting to improve their lot by means of education. They are considered to be "external" if they believe their lives are largely controlled by events and circumstances over which they have very little influence. Four items were employed to measure this psychological concept.

The data in tables 4.1 and A.6 indicate that there has been a shift toward externality. Table 4.1 shows that 1980 seniors were more likely than 1972 seniors to believe that "good luck is more important than hard work for success" (11.6 vs. 8.4 percent); that "people who accept their condition in life are happier than those who try to change things" (36.6 vs. 31.0 percent); and that "every time I try to get ahead, something or someone stops me" (22.2 vs. 18.9 percent). The fourth item (namely, "planning only makes a person unhappy, since plans hardly ever work out anyway"), however, revealed no evidence of a change.

Table 4.1. Summary of Changes in "outlook on life" of high school seniors: 1972 and 1980

Variable	1972	1980
A. Locus of control (percentage *agree strongly or agree*)		
Good luck more important than hard work	8.4	11.6
Something or somebody stops me from getting ahead	18.9	22.2
Does not pay to plan ahead	18.2	18.0
People should accept conditions	31.0	36.8
B. Self-esteem (percentage *agree strongly*)		
I take positive attitude toward myself	25.6	32.6
I am a person of worth	30.0	33.5
I am able to do things as well as most others	25.6	33.6
I am satisfied with myself	17.8	22.6
C. Regardless of plans, *definitely* thinks has the ability to complete college (percentage)	41.3	47.9
D. Life values (percentage believe *very important*)		
Success in my work	84.5	88.3
Marriage and happy family life	81.7	80.8
Strong friendships	79.2	81.2
Steady work	77.8	84.2
Better opportunities for my children	66.8	66.9
Correcting social and economic inequalities	26.9	13.1
Lots of money	17.8	31.7
Moving from this area of the country	14.6	14.5
Community leadership	11.4	9.8
Living close to parents and relatives	7.7	14.0
E. Work values (percentage believe *very important*)		
Important and interesting work	79.0	85.4
Meeting and working with friendly, sociable people	57.4	65.8
Freedom to make my own decisions	43.1	61.8
Job security and permanence	40.3	58.0
Good income within a few years	31.3	45.9
Previous experience in the area	19.3	30.8

Self-Esteem

Four items were employed to measure the senior's self-image. All four indicated that 1980 seniors had a higher regard for themselves than did 1972 seniors (tables 4.1 and A.7). Table 4.1 shows that 1980 seniors were more likely to agree *strongly* with the following statements: "I take a positive attitude toward myself" (32.6 vs. 25.6 percent); "I feel I am a person of worth, on an equal plane with others" (33.5 vs. 30.0 percent); "I am able to do things as well as most other people" (33.6 vs. 25.6 percent); and "On the whole, I am satisfied with myself" (22.6 vs. 17.8 percent). The size of the upward trend in self-esteem was not the same for all groups of students (table A.7). It tended to be greater for males, high SES students, and academic program students than for females, low SES students, and non-academic program students.

Confidence in ability to complete college would seem to be related to or reflect self-esteem. Seniors were asked: "Whatever your plans, do you think you have the ability to complete college?" Despite the downward trend from 1972 to 1980 in verbal and quantitative skills, and in number of academic courses taken, table 4.1 indicates more 1980 than 1972 seniors (47.9 vs. 41.3 percent) answered, "Yes, definitely." Table A.7 shows that the increase in self-confidence regarding college ability was greater for minority-group students than for white students, and surprisingly was greater for non-academic than for academic program students.

Life Values

Trends in life values are given in tables 4.1 and A.8. Overall, 1980 seniors assigned much more importance than 1972 seniors to work-related values and living close to parents and much less to correcting social and economic inequalities and to community leadership. There was little, if any, change with regard to the amount of importance attached to marriage and happy family life, strong friendship, better opportunities for own children, or moving to another part of the country.

The increases in "very important" ratings for work-oriented life values were from 77.8 to 84.2 percent for finding steady work, from 84.5 to 88.3 percent for success in my line of work, and from 17.8 to 31.7 percent for having lots of money (table 4.1). For all three of these variables, the size of the increase tended to be somewhat greater for young women than for young men (table A.8). For example, the feeling that finding steady work was very important jumped by 5.4 points for females but rose only by 2.3 points for males. High academic ability and high SES seniors by 1980 had become at least as concerned about finding steady work and success in work as low academic ability and low SES seniors, whereas in 1972 they were not nearly so concerned.

The 8-year increase in "very important" ratings for "living close to parents and relatives" was from 7.7 to 14.0 percent (table 4.1). The size of the increase was about the same for all categories of seniors.

The overall percentage of seniors who thought that "being a leader in my community" was very important fell from 11.4 to 9.8. The size of the change was a function of SES and academic ability. The decline was very sharp for low SES and low academic ability seniors, but there actually was an increase in importance assigned to community leadership for high SES and high academic ability students.

Work Values

The 1980 seniors were much more likely than the 1972 seniors to think that every one of the six factors listed (tables 4.1 and A.9) was important in selecting the kind of work they planned to be doing for most of their lives. This increase for all six factors seems consistent with the findings of the previous section that 1980 seniors were more concerned than their 1972 counterparts about finding steady work, being successful in that work, and making lots of money. Table 4.1 shows that the increases were especially large for freedom to make own decisions (43 to 62 percent), job security and permanence (41 to 58 percent), previous work experience in the job area (19 to 31 percent), and good income to start or within a few years (31 to 46 percent). The size of the trend was smaller for the other two factors; namely, meeting and working with sociable, friendly people and doing important and interesting work.

Some, but far from all, of the trends for the total population were due to a narrowing of the gender gap. Young women revealed a stronger trend than did young men toward valuing freedom to make their own decisions; in fact, in 1980 they placed slightly more value on this factor than did males, whereas the opposite had been true in 1972 (table A.9). The ratings for this factor rose from 64 to 80 for females but only from 68 to 78 for males. Female ratings of the importance of both a good income and job security and permanence also grew more rapidly than those of males. On the other hand, while 1980 females still valued working with friendly, sociable people more highly than did 1980 males, the gender gap had narrowed since 1972. Thus there was a considerable amount of convergence over this 8-year period in occupational values of young women and men.

The size of the upward trend was somewhat larger for white than for minority-group seniors for two factors: freedom to make own decisions, and working with friendly, sociable people. The higher the SES and higher the test score composite, the stronger was the upward trend in importance assigned to job security and permanence.

CHAPTER 5

PLANS AND ASPIRATIONS

Overview

Students completed questionnaires shortly before they were to make one of the key transitions in their lives: from 12 years of programmed full-time schooling to a variety of experiences, including various kinds of postsecondary education, career-oriented work, marriage, and family formation, with various options regarding the sequencing and timing of these experiences.

This chapter first compares 1972 and 1980 seniors with regard to their immediate plans for the year after high school and the extent to which these plans had been influenced by school personnel. The two sets of seniors then are compared with regard to the amount of postsecondary education they expected to obtain and finally with respect to their occupational goals.

Short-Term Plans

The percentage of seniors who planned some form of postsecondary education as "the one thing that most likely will take the largest share of your time in the year after you leave high school" did not change significantly over the 8-year period. There was a shift, however, in the type of educational institution they planned to attend. As shown in table 5.1, more 1980 seniors than 1972 seniors planned to attend a 4-year institution (37.8 vs. 33.6 percent), and fewer planned to go to a 2-year institution (14.4 vs. 16.7 percent) or to a trade or business school (6.1 vs. 8.8 percent).[1] The decline in percentage of 2-year college aspirants is due entirely to the fact that fewer seniors expected to take academic courses in such institutions (11.3 to 8.6 percent). The percentage expecting to take technical courses in such institutions showed no decline.

Table 5.1. Percentage distribution of short-term plans of high school seniors, by sex: 1972 and 1980 seniors

Activity that will take largest share of time the year after high school	All students		Males		Females	
	1972	1980	1972	1980	1972	1980
Total	100.0	100.0	100.0	100.0	100.0	100.0
Taking courses, full- or part-time, at						
A trade or business school	8.8	6.1	7.2	5.4	10.3	6.7
A junior or community college						
Technical courses	5.4	5.8	5.2	5.2	5.5	6.4
Academic courses	11.3	8.6	11.4	7.1	11.2	10.2

[1] This shift is counter to the overall enrollment trends in 2-year and 4-year colleges during this period, according to figures from the NCES Higher Education General Information Survey. The apparent inconsistency may be related to the rapid increase between 1972 and 1980 in the percentage of public 2-year institution enrollment that is part-time (from 53 to 63 percent), coupled with the increased percentage of seniors who planned to work as their "major" activity the year after high school (from 26 to 30). Thus relatively more 1980 than 1972 seniors actually may have been planning to attend 2-year colleges, but there may have been an even greater tendency for such persons to consider work as their "major activity."

Table 5.1. Percentage distribution of short-term plans of high school seniors, by sex: 1972 and 1980 seniors

Activity that will take largest share of time the year after high school	All students		Males		Females	
	1972	1980	1972	1980	1972	1980
A 4-year college or university	33.6	37.8	34.6	37.2	32.5	39.2
Working full-time	25.9	29.5	24.8	31.5	27.0	26.8
Apprenticeship or on-the-job training	2.7	2.4	3.8	3.4	1.5	1.6
Regular military service (or service academy)	3.4	3.5	6.0	5.4	0.8	1.6
Full-time homemaker	2.8	1.2	0.1	0.2	5.5	2.1
Working part-time, but not attending school	2.1	1.9	1.9	1.5	2.2	2.2
Other (travel, take a break, no plans)	4.2	3.2	5.0	3.1	3.5	3.3

Note.—Details may not add to totals because of rounding.

The percentage of seniors planning to work full-time increased from 25.9 to 29.5 percent while the percentage planning to be homemakers or to travel or take a break declined from 2.8 to 1.2 percent and 4.2 to 3.2 percent, respectively.

The 8-year trends in planned activities were quite different for young women and young men. While the estimated percentage of males planning academic college work did not change significantly (46.0 in 1972 vs. 44.3 in 1980), the percentage of females rose from 43.7 to 49.4—from a figure 2 percentage points lower than that for males in 1972 to a figure 5 points higher in 1980.[1] A second major gender difference occurred for the activity full-time work. The percentage of males planning this activity the year after high school rose from 24.8 to 31.5 percent while the corresponding figure for females remained at about 27 percent. It also should be noted that females exhibited an increased inclination to enter the military service (from 0.8 to 1.6 percent), and a decreased tendency to become full-time homemakers (from 5.5 to 2.1 percent). Finally, note that the inclination to travel, take a break, or have no plans was less in 1980 than in 1972 for males (3.1 vs. 5.0 percent), but remained virtually unchanged for females (3.3 vs. 3.5 percent).

Influence of School Staff on Plans

Students in both surveys were asked to indicate how much their plans for after high school had been influenced by a guidance counselor or by teachers.[2] Answer choices were "Not at all," "Somewhat," and "Frequently," which were scored 0, 50, and 100, respectively. Using this scale, the feeling that guidance counselors had influenced their plans went up slightly (from 27.5 to 30.3); and the feeling regarding the influence of teachers rose considerably (from 24.6 to 36.3). If attention is directed simply at the percentage of seniors who felt at least somewhat influenced by guidance counselors, this value rose from 46.4 to 49.8, and the percentage who were at least somewhat influenced by teachers climbed from 39.0 to 58.0. (No table of these data is provided.)

The increase in the influence of school personnel on student plans was essentially the same regardless of how students were classified.

[1] These percentages are the totals of academic courses at junior or community colleges and all courses at 4-year colleges.
[2] The NLS-72 wording for the latter was, "A teacher other than a guidance counselor."

Planned Field of Study in College

Seniors who planned to go to college at some time in the future—whether in the year following high school or later and whether as a primary or secondary activity—were asked to indicate their choice of college field of study.[1] The results for students who said they planned to attend college as their major activity the year after high school are shown in table 5.2. The representation of females in this subset climbed from 49.5 percent in 1972 to 55.6 percent in 1980 (not shown in the table).

There were appreciable increases in the percentage planning to enter the following fields:

- Engineering and computer and information sciences (6.8 to 13.9 percent)
- Business (12.6 to 21.6 percent)

but movement away from—

- Education (12.3 to 6.5 percent)
- Biological and social sciences (26.8 to 19.4 percent)
- Mathematics and physical sciences (4.8 to 2.9 percent)
- English and foreign languages (4.6 to 3.1 percent)
- Music and philosophy (in total, 4.6 to 2.7 percent)
- Health-related careers (11.9 to 8.7 percent)

There were large shifts in field-of-choice distributions by sex. The male and female distributions were much more alike in 1980, although there were still some fairly substantial gender differences. Agriculture, architecture, computer and information sciences, and engineering continued to be predominantly male-chosen fields in 1980 (31.2 percent of males vs. 8.3 percent of females); but the gap had narrowed substantially since 1972 when 21.4 percent of males and only 1.8 percent of females planned to enter these fields. In other words, these fields were male-preferred by a ratio of 12 to 1 in 1972, but by less than 4 to 1 in 1980.[2]

The gender ratio for biological and social sciences actually switched from 1.3 to 1 in favor of males to 1.2 to 1 in favor of females.[3] Another shift toward females occurred for business, which went from male dominant in 1972 (16.0 percent of males vs. 9.1 percent of females) to neutral in 1980 (almost 22 percent for each sex).

On the other hand, some fields that were more preferred by females than males in 1972 became less so in 1980. For example, the preference ratio in favor of females for art, English, foreign languages, and music fell between 1972 and 1980 from 2.2 to 1 (15.9 vs. 7.2 percent) to 1.4 to 1 (11.2 vs. 7.9 percent). It should be noted that the percentage of females planning to enter health-related fields fell from 20.3 to 14.0 percent, a slight decline was also evident for males, from 3.7 to 2.2 percent.

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[1] The 1972 seniors were asked for their "present choice;" the 1980 seniors were asked to indicate what they would "most like to study."

[2] The trend is even more dramatic if the change in sex composition of the college aspirants is taken into account. From 1972 to 1980, the number of females planning to enter these fields more than quadrupled, and the female representation in these fields rose from 8 to 25 percent.

[3] See footnote "b" to table 5.2, however, regarding a possible comparability problem.

Table 5.2. Percentages of 1972 and 1980 seniors who expected that attending college would be their primary activity the following year, by intended field of study,[a] and by sex

College field of study	All students		Males		Females	
	1972	1980	1972	1980	1972	1980
Total	100.0	100.0	100.0	100.0	100.0	100.0
Science, engineering, mathematics:						
Agriculture	3.1	2.4	5.4	3.7	0.6	1.3
Architecture	1.9	2.1	3.5	4.0	0.2	0.7
Biological and social science[b]	26.8	19.4	30.3	17.9	23.4	20.6
Computer and information sciences	1.6	4.5	2.3	5.5	0.8	3.7
Engineering	5.2	9.4	10.2	18.0	0.2	2.6
Mathematics	2.1	0.9	2.4	1.0	1.8	0.9
Physical sciences	2.7	2.0	3.9	3.0	1.4	1.1
Subtotal	(43.4)	(40.7)	(58.0)	(53.1)	(28.4)	(30.9)
Arts and humanities:						
Art	3.7	4.5	2.4	3.5	5.0	5.2
English	3.2	2.2	1.7	1.6	4.7	2.8
Ethnic studies[c]	0.2	0.0	0.2	0.0	0.3	0.1
Foreign languages	1.4	0.9	0.2	0.3	2.7	1.4
Home economics	1.5	1.5	0.0	0.0	3.1	2.7
Interdisciplinary studies	0.2	0.2	0.4	0.1	0.1	0.2
Journalism[d]	1.9	3.7	2.2	3.4	1.7	3.9
Music	3.2	2.1	2.9	2.5	3.5	1.8
Philosophy	1.4	0.6	1.5	0.9	1.3	0.2
Subtotal	(16.7)	(15.7)	(11.5)	(12.3)	(22.4)	(18.3)
Business	12.6	21.6	16.0	21.4	9.1	21.7
Education	12.3	6.5	6.8	3.1	17.9	9.2
Health-related careers[e]	11.9	8.7	3.7	2.2	20.3	14.0
Vocational or technical	3.2	2.6	4.1	3.9	2.2	1.5
Other	[f]	4.2	[f]	3.8	[f]	4.6

[a] The 1972 seniors were asked to pick the most similar field if the exact field was not listed. The 1980 seniors were instructed to indicate the field that came closest to what they would most like to study in college. The HS&B form contained an "other" choice; the NLS-72 form did not.

[b] These two fields were grouped because the NLS-72 form included prelaw and psychology as examples under social sciences and predentistry and premedicine under biological sciences, while the HS&B form has "Preprofessional (for example, prelaw, predentistry, and premedicine)" and "Psychology" as separate fields.

[c] The NLS-72 form used the terminology, "Black studies, Mexican-American studies, or other ethnic studies." The HS&B form used the wording, "Ethnic studies (for example, black studies and Mexican-American studies)."

[d] NLS-72 employed the wording, "Journalism (for example, communications and radio and television)," HS&B the wording, "Communications (for example, journalism, radio, and television)."

[e] NLS-72 employed one descriptor: "Health-related careers (for example, nursing, medical technology, and x-ray technology;" HS&B used two: "Health occupations (for example, practical nursing, medical technology, and x-ray technology)" and "Health sciences (for example, registered nursing, optometry, and pharmacy)."

[f] The NLS-72 questionnaire did not contain this answer option.

Note.—Details may not add to totals because of rounding.

Amount of Postsecondary Education Planned

There are some difficulties in trying to compare educational plans because of differences between the two studies in question and response wordings (table 5.3 footnotes), item response rate differences, and possibly, the time in the school year that the survey was conducted.[1] Both surveys show that about four-fifths of the seniors planned to get some form of postsecondary education. The type and amount planned, however, differ. The major change is that many more 1980 than 1972 seniors (20.2 vs. 12.6 percent) planned to get an advanced degree and fewer planned to stop with a bachelor's degree (25.3 vs. 37.6 percent) (table 5.3).

There was a marked shift in distributions by gender. The percentage of males expecting to end their education with a high school diploma or less increased from 15.5 to 21.0 percent, while for females the figure dropped from 22.2 to 18.2 percent. While the percentage of males planning an advanced degree rose from 16.3 to 21.2 percent, the corresponding figure for females rose much more sharply, from 9.1 to 19.8 percent.

Table 5.3. Percentages of 1972 and 1980 seniors who aspired to designated levels of education as their ultimate educational goal,[a] by sex

	All students		Males		Females	
Highest level planned[b]	1972	1980	1972	1980	1972	1980
Total	100.0	100.0	100.0	100.0	100.0	100.0
Less than high school graduation	2.2	0.4	2.4	0.6	2.0	0.3
High school graduation only	16.7	19.4	13.1	20.4	20.2	17.9
Vocational, trade, or business school	18.0	19.6	17.4	20.1	18.6	18.9
Junior college	12.8	15.1	11.5	11.7	14.1	18.1
Four-year college or university	37.6	25.3	39.2	26.0	36.0	25.1
Graduate or professional school	12.6	20.2	16.3	21.2	9.1	19.8

[a] The NLS-72 questionnaire asked the student to indicate the highest level of education planned to attain. The HS&B questionnaire asked, "As things stand now, how far in school do you think you will get?"

[b] The question formats and answer choices fo 1972 and 1980 seniors were not identical. The major differences in choices were as follows:

NLS-72	HS&B
Go to a junior college	College program: Less than 2 years of college Two or more years of college (including 2-year degree)
Go to a 4-year college or university	College program: Finish college (4- or 5-year degree)
Go to a graduate or professional school after college	College program: Master's degree or equivalent Ph.D., M.D., or other advanced professional degree

Note.—Details may not add to totals because to rounding.

Occupational Goals

For several reasons, caution should be employed in interpreting the results regarding trends in occupational goals. The 1972 seniors were asked to indicate which of 14 job categories best described "the kind of work you would *like* to do" (emphasis added); whereas, 1980 seniors were asked to indicate which of 16 job categories[2] came closest to describing "the job or occupation you *expect or plan* to have when you are *30 years old*" (emphasis added). Furthermore, because of formatting problems in NLS-72 and because this item was a "critical item" in HS&B, the NLS-72 item response rate was much lower than the HS&B rate (.754 vs. .950).

[1] The item response rate was only .736 for NLS-72 but .971 for HS&B. In NLS-72 the item was in a probably confusing matrix-column form; in HS&B it was in a simple one-column form and, was designated a "critical item." HS&B was conducted at least 1 month earlier in the school year.

[2] In HS&B, the one "professional" category of NLS-72 was divided into three separate categories. The HS&B item, but not the one used in NLS-72, also had a "not working" response option. Only 1.3 percent of respondents gave this answer; for the purpose of this trend analysis, they were treated as nonrespondents.

Table 5.4 groups the non-professional occupations into two categories: male-dominant and female-dominant. The 1980 seniors were more prone than the 1972 seniors to choose "male-dominant" jobs (38.1 vs. 30.1 percent), particularly those of manager/administrator (7.1 vs. 3.1 percent), proprietor/owner (4.0 vs. 1.8 percent), and technical (8.2 vs. 6.6 percent). This was compensated for by a substantial decline in preference for clerical and other "female-dominant" jobs (from 24.5 to 18.3 percent) and slight decline for the professional category (from 45.4 to 43.5 percent).

All of the previously mentioned trends were considerably greater for females than for males. For example, the female preference for "male-dominant" jobs more than doubled from 9.8 to 19.8 percent. The increased interest of females in manager/administrator and proprietor/owner jobs was especially pronounced, going from a total of 1.8 to 8.9 percent. Also, the percentage of young women planning to enter professional occupations was virtually unchanged (at about 49 percent), while the corresponding statistics for males fell 3 percentage points to a level in 1980 that was 10 percentage points below the figure for females (38.8 vs. 48.7 percent.)[1]

Table 5.4. Percentages of 1972 and 1980 seniors who expected to enter designated occupations, by sex

Job or occupational category	All students		Males		Females	
	1972	1980	1972	1980	1972	1980
Total	100.0	100.0	100.0	100.0	100.0	100.0
Professional[a]	45.4	43.5	41.8	38.8	48.8	48.7
Male-dominant:						
Craftsman	7.6	8.3	15.1	15.7	0.5	1.1
Farmer, farm manager	1.6	2.0	2.7	3.4	0.6	0.8
Laborer	2.5	2.0	4.9	3.7	0.3	0.2
Manager/administrator	3.1	7.1	5.1	7.9	1.3	6.4
Military	2.4	2.0	4.1	3.2	0.8	1.0
Operative	2.3	2.7	3.9	4.5	0.8	1.0
Proprietor/owner	1.8	4.0	3.2	5.6	0.5	2.5
Protective service	2.2	1.8	4.2	2.8	0.4	0.8
Technical	6.6	8.2	8.8	10.5	4.6	6.0
Subtotal	(30.1)	(38.1)	(52.0)	(57.3)	(9.8)	(19.8)
Female-dominant:						
Clerical	14.2	9.8	1.9	1.3	25.5	17.7
Homemaker or housewife[b]	3.1	2.9	0.0	0.1	5.9	5.5
Sales	3.0	2.1	2.7	2.0	3.4	2.2
Service	4.2	3.5	1.6	0.7	6.7	6.1
Subtotal	(24.5)	(18.3)	(6.2)	(4.1)	(41.5)	(31.5)

[a] HS&B listed school teacher and two other categories of professionals. These three categories were combined.
[b] The HS&B wording was "Homemaker or housewife only."
Note.—Details may not add to totals because of rounding.

[1] In HS&B, the one "professional" category of NLS-72 was divided into three separate categories. The HS&B item, but not the one used in NLS-72, also had a "not working" response option. Only 1.3 percent of respondents gave this answer; and for the purpose of this trend analysis, they were treated as nonrespondents.

APPENDIX A

Estimated Changes Between 1972 and 1980 by Sex, Race, Socioeconomic Status Quartile, Test Score Quartile, High School Program, and Geographical Region

APPENDIX A

ESTIMATED CHANGES BETWEEN 1972 AND 1980 BY SEX, RACE, SOCIOECONOMIC STATUS QUARTILE, TEST SCORE QUARTILE, HIGH SCHOOL PROGRAM, AND GEOGRAPHICAL REGION

Table A.1. Coursework (mean number of semesters) taken during 10th through 12th grades in five academic areas: 1972 and 1980 seniors, by selected student characteristics

		Sex		Race		SES			Test score level			Program		Region	
Year	All Students	Male	Female	White	Minority	Low	Med	High	Low	Med	High	Academic	Non-Academic	Northeast, Central	South, West
Mathematics, s = 1.81.															
1980	4.12	4.38	3.91	4.09	4.24	3.63	4.05	4.83	3.48	3.92	5.17	5.12	3.51	4.23	4.01
1972	3.73	4.13	3.33	3.79	3.41	3.12	3.68	4.45	2.67	3.62	4.90	4.75	2.87	3.76	3.89
d	.39	.25	.58	.30	.83	.51	.37	.38	.81	.30	.27	.37	.64	.47	.32
t	21.5	9.1		12.7			2.5			10.6		7.5		4.1	
Sciences, s = 1.80															
1980	3.44	3.66	3.27	3.47	3.33	2.93	3.37	4.20	2.75	3.22	4.62	4.48	2.81	3.58	3.29
1972	3.46	3.77	3.15	3.53	3.10	3.01	3.40	4.02	2.63	3.34	4.45	4.37	2.70	3.56	3.33
d	−.02	−.11	.12	−.06	.23	−.08	−.03	.18	.12	−.12	.17	.11	.11	.02	−.04
t	1.1	6.4		6.9			5.1			1.0		0.0		1.7	
English,[b] s = 1.32															
1980	6.03	5.99	6.09	6.03	6.03	5.91	6.02	6.20	5.87	6.05	6.22	6.30	5.87	6.04	6.02
1972	6.16	6.16	6.16	6.18	6.08	6.05	6.14	6.32	5.98	6.16	6.32	6.33	6.02	6.19	6.12
d	−.13	−.17	−.07	−.15	−.05	−.14	−.12	−.12	−.11	−.11	−.10	−.03	−.15	−.15	−.10
t	9.8	3.8		3.3			0.5			0.3		4.5		1.9	
Foreign languages,[c] s = 1.85															
1980	1.63	1.46	1.84	1.64	1.62	1.12	1.51	2.53	0.79	1.50	2.72	2.69	1.00	1.80	1.46
1972	2.06	1.82	2.30	2.16	1.59	1.23	1.97	3.11	0.75	1.94	3.47	3.27	1.05	2.27	1.79
d	−.43	−.36	−.46	−.52	.03	−.11	−.46	−.59	.04	−.44	−.75	−.58	−.05	−.47	−.33
t	23.2	2.7		12.9			9.2			15.2		14.3		3.8	
Social studies,[d] s = 1.67															
1980	4.66	4.70	4.64	4.69	4.50	4.47	4.69	4.83	4.43	4.66	4.91	4.89	4.51	4.82	4.48
1972	5.37	5.43	5.30	5.39	5.28	5.31	5.39	5.38	5.26	5.41	5.42	5.47	5.28	5.43	5.29
d	−.71	−.73	−.66	−.70	−.78	−.84	−.70	−.55	−.83	−.75	−.51	−.58	−.77	−.61	−.81
t	42.5	2.1		2.1			6.2			6.8		5.7		6.0	

[a] The symbol "s" is used to denote estimated standard deviation. Values of "s" were calculated from the residual mean squares of regression analyses that contained the predictor variables time (1980 vs. 1972), sex, race, SES, test score, program, region, and interactions between time and each of the other predictor variables. (These regression analyses are not presented in this report, but are available from NCES.) The estimated algebraic difference between 1980 and 1972 means is denoted by "d," and the absolute value of student's (t) statistic by "t." Values of "t" were not adjusted downward for survey design effects. Instead critical values of the distribution were adjustward upward (Appendix B). For "all students" the value of "t" is a measure of the magnitude of the 1972 to 1980 difference. For the six classification variables, the value of "t" is a measure of the amount of non-uniformity of the trend for the subgroups formed by the classification variables. For SES and test score, only the extreme subgroups (low and high) are contrasted.

[b] HS&B used the terminology "English or literature."

[c] NLS-72 had one title "Foreign languages," HS&B listed three languages separately (French, German, and Spanish), which were combined for this analysis.

[d] HS&B used the terminology "History or social studies."

Table A.2. Mean scores for student evaluations of school curriculum and counseling: 1972 and 1980 seniors, by selected student characteristics[a]

Year	All Students	Sex		Race		SES			Test score level			Program		Region	
		Male	Female	White	Minority	Low	Med	High	Low	Med	High	Academic	Non-Academic	Northeast, Central	South, West
"How much do you agree with each of the following statements about your high school?"[b]															
School should have placed more emphasis on basic academic subjects, s = 20.7.															
1980	62.4	61.8	62.8	60.7	68.9	63.5	62.0	61.9	63.7	62.5	61.1	63.2	62.0	60.7	64.3
1972	49.3	49.1	49.6	47.5	58.7	54.0	48.4	46.6	55.6	48.0	45.5	49.1	49.6	46.3	53.3
d	13.1	12.7	13.2	13.2	10.2	9.5	13.6	15.3	8.1	14.5	15.6	14.1	12.4	14.4	11.0
t	63.3	1.2		6.3			9.9			12.8		4.1		8.2	
School should have placed more emphasis on vocational and technical programs, s = 20.7.															
1980	67.3	68.1	66.3	65.8	72.6	73.3	67.9	58.5	75.2	68.6	55.9	58.3	72.5	65.8	68.9
1972	64.7	64.3	65.1	64.2	67.1	68.0	65.9	58.5	69.6	65.5	58.6	58.6	69.3	65.2	64.1
d	2.6	3.8	1.2	1.6	5.5	5.3	2.0	0.0	5.6	3.1	-2.7	-0.3	3.2	0.6	4.8
t	12.6	6.3		8.2			9.1			14.2		8.5		10.1	
School did not offer enough practical work experience, s = 23.5.															
1980	60.9	62.1	59.7	60.3	62.9	63.6	61.2	56.9	65.3	61.4	56.2	57.6	62.9	61.9	59.9
1972	62.3	63.5	61.1	62.4	61.7	62.0	63.3	60.3	60.8	63.0	63.2	61.7	62.8	63.9	60.2
d	-1.4	-1.4	-1.4	-2.1	1.2	1.6	-2.1	-3.4	4.5	-1.6	-7.0	-4.1	0.1	-2.0	-0.3
t	6.0	0.0		6.1			7.5			17.5		8.9		3.6	
School provided helpful education counselings, s = 24.6.															
1980	59.4	59.7	58.9	57.8	65.6	62.2	58.2	58.5	63.3	58.2	57.3	62.0	57.6	57.6	61.3
1972	56.1	55.8	56.8	55.0	61.5	59.9	56.0	52.5	59.5	54.9	54.4	57.6	54.7	54.7	57.8
d	3.3	3.9	2.6	2.8	4.1	2.3	2.2	6.0	3.8	3.3	2.9	4.4	2.9	2.9	3.5
t	13.4	2.6		2.3			5.4			1.3		3.0		1.2	
School provided helpful employment counselings, s = 25.0.															
1980	47.5	47.6	46.8	45.4	55.2	54.7	46.4	40.4	57.7	46.5	36.8	42.0	50.6	45.2	50.0
1972	38.5	36.6	40.4	36.8	46.9	48.7	37.8	28.1	49.7	37.6	27.3	31.5	43.7	36.6	41.0
d	9.0	11.0	6.4	8.6	8.3	6.0	8.6	12.3	8.0	8.9	9.5	10.5	6.9	8.6	9.0
t	36.0	9.2		0.5			8.9			2.1		7.2		0.8	

[a] See footnote "a" in table A.1 for an explanation of the symbols "s," "d," and "t."

[b] Responses were coded as follows: Agree strongly = 100, agree somewhat = 66.7, disagree somewhat = 33.3, and disagree strongly = 0. Students who answered "does not apply" were omitted from the calculations. For each item, about 11 percent of 1972 seniors and 7 percent of 1980 seniors gave "does not apply" responses.

36

Table A.3. Mean scores for student ratings of five aspects of their schools: 1972 and 1980 seniors, by selected student characteristics[a]

Year	All Students	Sex		Race		SES			Test score level			Program		Region	
		Male	Female	White	Minority	Low	Med	High	Low	Med	High	Academic	Non-Academic	Northeast, Central	South, West
"Please rate your school on each of the following aspects."[b]															
Reputation in the community, s = 28.6.															
1980	61.4	61.6	61.4	62.8	56.6	55.7	61.6	68.0	53.7	61.7	68.9	67.9	57.4	61.0	61.9
1972	65.3	64.7	65.9	66.7	57.9	61.0	65.4	69.4	58.8	66.2	70.4	69.0	62.2	65.1	65.6
d	−3.9	−3.1	−4.5	−3.9	−1.3	−5.3	−3.8	−1.4	−5.1	−4.5	−1.5	−1.1	−4.8	−4.1	−3.7
t	13.7	2.5		4.0			4.8			4.5		6.5		0.7	
Condition of buildings and classrooms, s = 28.0.															
1980	57.8	59.0	56.9	59.4	52.0	54.1	57.6	62.6	52.2	57.6	64.2	61.4	55.6	57.8	57.8
1972	61.9	62.8	61.1	63.3	55.1	57.8	61.9	66.1	57.7	61.8	66.5	64.4	59.8	62.6	61.1
d	−4.1	−3.8	−4.2	−3.9	−3.1	−3.7	4.1	−3.5	−5.5	−4.0	−2.3	−3.0	−4.2	−4.8	−3.3
t	14.6	0.7		1.2			0.2			4.0		2.1		2.7	
Quality of academic instruction, s = 24.5.															
1980	57.0	57.9	56.5	57.8	54.6	52.6	57.1	62.4	50.1	56.3	64.7	64.4	52.5	57.7	56.2
1972	58.5	58.2	58.7	59.1	55.1	55.4	58.7	61.1	53.7	57.9	64.0	62.8	54.8	59.1	57.6
d	−1.5	−0.3	−2.2	−1.3	−0.5	−2.8	−1.6	1.3	−3.6	−1.6	0.7	1.6	−2.3	−1.4	−1.4
t	6.1	3.9		1.4			5.9			6.2		8.0		0.0	
Library facilities, s = 28.4.															
1980	60.2	60.5	59.9	60.3	59.9	60.6	60.2	59.9	60.1	61.2	58.0	59.6	60.6	60.3	60.0
1972	57.8	58.4	57.3	57.6	59.2	59.3	57.5	57.1	60.4	57.7	55.6	56.2	59.1	57.4	58.4
d	2.4	2.1	2.6	2.7	0.7	1.3	2.7	2.8	−0.3	3.5	2.4	3.4	1.5	2.9	1.6
t	8.4	0.9		3.0			1.9			3.3		3.3		2.3	
Teacher interest in students, s = 28.4.															
1980	52.4	52.9	52.0	52.9	50.8	49.5	51.8	57.5	46.9	50.7	60.7	59.3	48.1	52.0	52.8
1972	50.7	50.2	51.3	51.0	49.5	50.5	50.4	51.7	48.7	48.9	55.4	53.7	48.2	50.2	51.3
d	1.7	2.7	0.7	1.9	1.3	−1.0	1.4	5.8	−1.8	1.8	5.3	5.6	−0.1	1.8	1.5
t	6.0	3.5		0.9			8.4			8.8		10.0		0.5	

[a] See footnote "a" in table A.1 for an explanation of the symbols "s," "d," and "t."

[b] Responses were coded as follows: Excellent = 100, good = 66.7, fair = 33.3, poor = 0. Students who answered "don't know" were assigned rating scores of 50.

Table A.4. Mean scores for student assessments of whether poor study habits, poor teaching, and courses being too hard had interfered with their education: 1972 and 1980 seniors, by selected student characteristics[a]

Year	All Students	Sex		Race		SES			Test score level			Program		Region	
		Male	Female	White	Minority	Low	Med	High	Low	Med	High	Academic	Non-Academic	Northeast, Central	South, West
"How much has each of the following interfered with your education at this school?"[b]															
Poor study habits, s = 26.9															
1980	44.0	48.0	40.3	44.7	40.7	41.8	44.7	45.1	42.8	45.8	41.0	41.5	45.6	44.1	44.0
1972	34.8	40.7	28.9	34.9	35.8	34.0	35.0	35.3	36.4	36.3	30.6	32.7	36.5	34.9	34.7
d	9.2	7.3	11.4	9.8	6.9	7.8	9.7	9.8	6.4	9.5	10.4	8.8	9.1	9.2	9.3
t	34.2	7.6		4.7			2.6			5.3		0.6		0.2	
Poor teaching, s = 32.6.															
1980	35.6	35.8	35.5	36.5	31.4	32.1	36.4	37.6	34.0	36.1	36.4	34.8	36.0	37.1	34.0
1972	30.1	30.4	29.8	30.2	28.5	26.7	30.0	33.6	29.0	29.5	32.0	31.8	28.7	30.4	29.7
d	5.5	5.4	5.7	6.3	1.9	5.4	6.4	4.0	5.0	6.6	4.4	3.0	7.3	6.7	4.3
t	16.9	0.5		5.8			1.5			0.7		6.6		3.7	
Courses are too hard, s = 33.0.															
1980	26.2	26.3	25.9	25.8	27.5	28.6	25.8	24.0	33.3	26.7	18.3	22.9	28.2	26.8	25.6
1972	22.2	22.8	21.5	21.7	24.6	24.0	22.9	18.6	28.9	23.3	14.8	19.8	24.1	22.9	21.2
d	4.0	3.5	4.4	4.1	2.9	4.6	2.9	5.2	4.4	3.4	3.5	3.1	4.1	3.9	4.4
t	12.1	1.4		1.6			0.6			1.0		1.5		0.8	

[a] See footnote "a" in table A.1 for an explanation of the symbols "s," "d," and "t."
[b] Responses were coded as follows: A great deal = 100, somewhat = 50, not at all = 0.

38

Table A.5. Mean cognitive test scores, mean homework time, and grade point average: 1972 and 1980 seniors, by selected student characteristics[a]

Year	All Students	Sex		Race		SES			Test score level			Program		Region	
		Male	Female	White	Minority	Low	Mod	High	Low	Med	High	Academic	Non-Academic	Northeast, Central	South, West
Vocabulary formula score (maximum = 15), s = 3.50															
1980	5.72	5.78	5.84	6.27	3.54	4.06	5.80	7.74	—	—	—	7.66	4.56	6.17	5.23
1972	6.39	6.29	6.50	6.91	3.75	4.38	6.36	8.49	—	—	—	8.16	4.92	6.80	5.98
d	−.67	−.51	−.66	−.64	−.21	−.32	−.56	−.75	—	—	—	−.50	−.36	−.63	−.65
t	19.1	2.1		5.3			4.6			—		2.0		.3	
Reading formula score (maximum = 20), s = 4.45															
1980	8.75	8.88	8.87	9.54	5.69	6.62	8.98	11.13	—	—	—	11.24	7.27	9.29	8.16
1972	9.74	9.65	9.83	10.41	6.38	7.47	9.76	12.01	—	—	—	11.87	7.97	10.10	9.28
d	−.99	−.77	−.96	−.87	−.69	−.85	−.78	−.88	—	—	—	−.63	−.70	−.81	−1.12
t	22.2	2.1		1.7			0.2			—		0.8		3.5	
Mathematics formula score (maximum = 18), s = 4.34															
1980	9.25	9.87	8.70	9.92	6.21	6.66	9.27	11.79	—	—	—	12.11	7.42	8.90	8.51
1972	9.93	10.61	9.26	10.64	6.28	7.36	9.86	12.46	—	—	—	12.48	7.71	10.28	9.35
d	−.68	−.74	−.56	−.72	−.07	−.70	−.59	−.67	—	—	—	−.37	−.29	−1.48	−.84
t	15.7	2.1		6.4			0.2			—		0.9		7.4	
Homework time (hours/week), s = 2.95															
1980	3.85	3.49	4.23	3.85	3.88	3.41	3.66	4.79	3.01	3.67	5.15	5.09	3.10	4.02	3.67
1972	4.26	3.59	4.93	4.24	3.39	4.10	4.15	4.68	3.55	4.08	5.19	5.10	3.57	4.33	4.17
d	−.41	−.10	−.70	−.39	.49	−.69	−.49	.11	−.54	−.41	−.04	−.01	−.47	−.31	−.50
t	13.9	10.2		12.9			9.7			5.8		7.6		3.2	
Grade average (A = 4, B = 3, C = 2, D = 1), s = 0.80															
1980	2.85	2.73	2.98	2.90	2.66	2.68	2.85	3.07	2.43	2.82	3.37	3.16	2.65	2.85	2.84
1972	2.78	2.63	2.92	2.82	2.58	2.62	2.75	2.98	2.34	2.73	3.27	3.02	2.57	2.78	2.80
d	.07	.10	.06	.08	.08	.06	.10	.08	.09	.09	.10	.16	.08	.09	.04
t	11.7	3.3		0.0			1.2			0.6		6.5		4.2	

[a] See footnote "a" in table A.1 for an explanation of the symbols "s," "d," and "t."

Table A.6. Mean values of locus of control items: 1972 and 1980 high school seniors, by selected student characteristics[a]

Year	All Students	Sex		Race		SES			Test score level			Program		Region	
		Male	Female	White	Minority	Low	Med	High	Low	Med	High	Academic	Non-Academic	Northeast, Central	South, West
Good luck more important than hard work, s = 22.5															
1980	71.8	69.8	73.9	73.5	65.1	68.4	72.4	75.1	61.3	74.0	78.4	75.8	69.4	72.4	71.0
1972	75.5	73.5	77.4	76.7	69.6	72.3	76.4	76.8	67.5	77.6	79.5	78.1	73.3	75.6	75.3
d	−3.7	−3.7	−3.5	−3.2	−4.5	−3.9	−4.0	−1.7	−6.2	−3.6	−1.1	−2.3	−3.9	−3.2	−4.3
t	16.4	0.4		2.5			3.5			8.0		3.6		2.4	
Stopped from getting ahead, s = 22.1															
1980	61.0	59.6	62.6	62.1	56.8	55.7	61.1	67.4	53.6	60.9	68.7	66.3	57.8	61.4	60.6
1972	62.7	60.4	64.9	63.8	57.1	57.6	62.9	67.3	55.2	62.8	69.6	66.8	59.3	62.9	62.4
d	−1.7	−0.8	−2.3	−1.7	−0.3	−1.9	−1.8	0.1	−1.6	−1.9	−0.9	−0.5	−1.5	−1.5	−1.8
t	7.7	3.4		2.7			3.2			1.1		2.3		0.7	
Does not pay to plan ahead, s = 24.9															
1980	67.6	65.9	69.5	69.0	62.2	61.8	68.2	73.8	57.9	68.3	76.1	73.3	64.2	67.5	67.6
1972	67.0	64.6	69.3	68.3	60.2	62.1	67.4	70.9	58.4	67.6	73.9	71.2	63.5	66.7	67.3
d	0.6	1.3	0.2	0.7	2.0	−0.3	0.8	2.9	−0.5	0.7	2.2	2.1	0.7	0.8	0.3
t	2.4	2.2		2.3			4.6			3.8		2.8		1.0	
People are happier if they accept conditions rather than trying to change them, s = 27.8															
1980	54.8	55.0	54.8	55.9	50.2	49.1	54.7	61.8	43.4	54.2	66.5	61.5	50.7	55.6	53.9
1972	59.0	58.9	59.2	60.2	53.3	53.4	59.1	64.6	46.4	59.8	69.3	64.8	54.3	60.1	57.7
d	−4.2	−3.9	−4.4	−4.3	−3.1	−4.3	−4.4	−2.8	−3.0	−5.6	−2.8	−3.3	−3.6	−4.5	−3.8
t	15.1	1.8		1.9			1.9			0.3		0.5		1.3	

[a] See footnote "a" in table A.1 for an explanation of the symbols "s," "d," and "t."
[b] Responses were coded as follows: Agree strongly = 0, agree = 33.3, no opinion = 50, disagree = 66.7, and disagree strongly = 100. High values on this scale indicate internality, low values externality.

Table A.7. Mean of self-esteem and self-perceived ability to complete college items: 1972 and 1980 high school seniors, by selected student characteristics[a]

Year	All Students	Sex		Race		SES			Test score level			Program		Region	
		Male	Female	White	Minority	Low	Med	High	Low	Med	High	Academic	Non-Academic	Northeast, Central	South, West
I take a positive attitude toward myself, s = 21.4															
1980	73.5	76.6	70.7	72.3	78.6	72.4	73.2	75.4	74.2	72.4	74.4	75.6	72.2	72.4	74.7
1972	68.8	70.7	66.9	68.2	72.0	68.1	68.4	70.4	68.9	67.9	69.9	70.4	67.4	67.3	70.5
d	4.7	5.9	3.8	4.1	6.6	4.3	4.8	5.0	5.3	4.5	4.5	5.2	4.8	4.9	4.2
t	22.0	4.9		5.1			1.2			1.0		0.9		1.6	
I feel I am a person of worth, s = 19.7															
1980	75.0	75.8	74.4	74.8	76.2	72.8	74.7	78.2	71.5	74.3	79.2	78.6	72.8	74.4	75.6
1972	73.2	73.7	72.7	73.0	74.2	72.5	72.6	75.0	70.9	72.8	75.8	75.1	71.6	72.2	74.5
d	1.8	2.1	1.7	1.8	2.0	0.3	2.1	3.2	0.6	1.5	3.4	3.5	1.2	2.2	1.1
t	9.1	1.0		0.4			5.2			5.0		5.8		2.8	
I am able to do things as well as most other people, s = 19.1															
1980	75.5	77.6	73.7	75.3	76.4	73.3	75.1	78.8	72.8	74.6	79.3	78.6	73.5	75.0	76.0
1972	71.5	73.4	69.6	71.2	73.3	70.6	70.8	74.1	70.1	70.4	74.7	73.5	69.9	70.6	72.7
d	4.0	4.2	4.1	4.1	3.1	2.7	4.3	4.7	2.7	4.2	4.6	5.1	3.6	4.4	3.3
t	20.9	0.3		2.3			3.7			3.5		3.9		2.9	
On the whole, I'm satisfied with myself, s = 23.1															
1980	67.3	67.6	67.1	67.1	68.3	65.8	67.1	69.4	67.2	66.4	68.9	69.1	66.1	66.8	67.8
1972	62.4	61.5	63.2	62.3	62.6	62.2	62.3	62.6	64.2	61.6	62.1	62.5	62.2	61.7	63.2
d	4.9	6.1	3.9	4.8	5.7	3.6	4.8	6.8	3.0	4.8	6.8	6.6	3.9	5.1	4.6
t	21.2	4.8		1.7			4.9			5.8		5.8		1.1	
Whatever your plans, do you think you have the ability to complete college?, s = 28.7															
1980	80.0	80.0	80.2	80.3	79.0	71.6	80.0	89.8	66.1	80.2	92.7	90.3	73.7	79.9	80.0
1972	76.3	76.4	76.2	77.1	72.5	67.8	75.7	86.1	61.3	76.1	90.0	86.4	67.8	75.7	77.1
d	3.7	3.6	4.0	3.2	6.5	3.8	4.3	3.7	4.8	4.1	2.7	3.9	5.9	4.2	2.9
t	12.9	0.7		5.0			0.1			2.6		3.5		2.3	

[a] See footnote "a" in table A.1 for an explanation of the symbols "s," "d," and "t."

[b] Responses to self-esteem items were assigned following values: Agree strongly = 100, agree = 66.7, no opinion = 50, disagree = 33.3, and disagree strongly = 0. Responses to "Do you think you have the ability to complete college?" were assigned following values: Yes, definitely = 100, yes, probably = 75, not sure = 50, I doubt it = 25, and definitely not = 0.

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Table A.8. Mean values of life goal items: 1972 and 1980 high school seniors, by selected characteristics[a, b]

Year	All Students	Sex		Race		SES			Test score level			Program		Region	
		Male	Female	White	Minority	Low	Med	High	Low	Med	High	Academic	Non-Academic	Northeast, Central	South, West
Success in my line of work, s = 18.6															
1980	93.6	93.9	93.6	93.6	94.0	92.5	94.0	94.8	92.0	94.5	94.0	95.0	92.8	93.7	93.6
1972	91.6	92.3	90.9	91.4	93.1	92.0	91.8	90.9	92.6	92.5	89.3	92.1	91.2	91.0	92.3
d	2.0	1.6	2.7	2.2	0.9	0.5	2.2	3.7	−0.6	2.0	4.7	2.9	1.6	2.7	1.3
t	10.8	3.0		3.0			6.1			10.1		3.5		3.8	
Marriage and happy family life, s = 25.9															
1980	88.0	85.9	90.1	88.7	85.5	87.4	88.4	88.2	86.5	89.2	88.1	88.7	87.5	87.6	88.4
1972	88.4	86.1	90.7	88.7	86.9	89.7	88.6	86.9	89.1	89.4	86.4	87.9	88.8	88.0	88.9
d	−0.4	−0.2	−0.6	0.0	−1.4	−2.3	−0.2	1.3	−2.6	−0.2	1.7	0.8	−1.3	−0.4	−0.5
t	1.5	0.8		2.3			4.9			5.9		4.1		0.2	
Having lots of money, s = 30.2															
1980	60.3	66.3	54.4	58.9	66.0	59.8	60.1	60.6	65.7	59.5	55.3	58.3	61.4	60.2	60.4
1972	47.7	55.1	40.3	46.5	53.8	49.3	47.2	47.0	55.2	47.1	41.6	46.2	49.0	46.8	48.8
d	12.5	11.2	14.1	12.4	12.2	10.5	12.9	13.6	10.5	12.4	13.7	12.1	12.4	13.4	11.6
t	41.7	4.8		0.3			3.6			3.8		0.5		3.0	
Having strong friendships, s = 21.9															
1980	89.7	89.7	90.0	92.0	80.8	85.9	90.4	93.4	83.8	91.1	93.6	92.2	88.2	90.5	89.0
1972	88.6	89.3	87.9	90.2	80.5	85.2	89.1	90.9	84.1	89.4	91.7	90.2	87.2	88.9	88.2
d	1.1	0.4	2.1	1.8	0.3	0.7	1.3	2.5	−0.3	1.7	1.9	2.0	1.0	0.6	0.8
t	5.0	3.9		3.0			2.9			3.9		2.3		0.5	
Finding steady work, s = 22.3															
1980	91.2	91.9	90.7	91.3	91.1	91.0	91.7	90.9	90.3	92.3	90.3	91.1	91.3	91.6	90.8
1972	87.5	89.6	85.3	87.1	89.7	90.6	87.5	83.6	90.9	89.4	81.3	85.6	89.1	86.8	88.3
d	3.7	2.3	5.4	4.2	1.4	0.4	3.8	7.3	−0.6	2.9	9.0	5.5	2.2	4.8	2.5
t	16.6	7.0		5.4			11.0			15.3		7.4		5.2	
Community leadership, s = 32.3															
1980	30.4	34.7	26.3	28.9	36.1	27.4	29.7	34.9	31.4	28.3	32.4	35.2	27.2	28.0	32.9
1972	32.8	37.2	28.4	31.4	40.0	36.1	31.6	32.2	37.1	32.3	30.3	34.8	31.0	30.2	36.2
d	−2.4	−2.5	−2.1	−2.5	−3.9	−8.7	−1.9	2.7	−5.7	−4.0	2.1	0.4	−3.8	−2.2	−3.3
t	7.4	0.6		1.9			12.5			8.6		6.5		1.7	
Better opportunities for my children, s = 29.2															
1980	80.6	80.8	80.4	78.5	89.2	85.9	81.1	73.7	85.5	82.2	72.9	78.2	82.1	78.8	82.6
1972	80.1	79.9	80.4	78.4	89.2	87.6	80.9	71.1	87.7	82.0	69.8	76.3	83.3	78.8	81.8
d	0.5	0.9	0.0	0.1	0.0	−1.7	0.2	2.6	−2.2	0.2	3.1	1.9	−1.2	0.0	0.8
t	1.7	1.5		0.1			5.2			6.4		5.3		1.4	
Living close to parents, s = 32.0															
1980	40.8	39.6	41.9	40.2	43.2	41.9	41.6	37.8	44.4	40.6	36.7	40.1	41.2	40.3	41.4
1972	28.6	27.3	29.8	27.9	32.1	30.9	29.7	23.9	33.1	28.8	23.6	26.6	30.2	27.9	29.4
d	12.2	12.3	12.1	12.3	11.1	11.0	11.9	13.9	11.3	11.8	13.1	13.5	11.0	12.4	12.0
t	38.1	0.3		1.6			3.2			2.0		3.9		0.6	
Moving from this area, s = 36.1															
1980	29.7	29.9	29.1	28.0	35.4	32.1	29.1	27.6	34.6	29.4	25.1	26.7	31.4	31.7	27.5
1972	28.7	28.0	29.4	28.0	32.5	30.7	28.2	27.6	33.1	28.5	24.9	26.8	30.2	29.8	27.3
d	1.0	1.9	−0.3	0.0	2.9	1.4	0.9	0.0	1.5	0.9	0.2	−0.1	1.2	1.9	0.2
t	2.8	3.0		3.5			1.4			1.3		1.8		2.4	
Correcting social and economic inequalities, s = 33.4															
1980	36.8	34.5	38.7	33.7	48.3	39.3	35.4	36.1	40.0	35.5	35.4	38.9	35.3	34.8	38.8
1972	52.9	48.1	57.6	51.1	61.7	55.6	51.3	53.6	52.8	52.3	54.1	55.0	50.8	51.6	54.5
d	−16.1	−13.6	−18.9	−17.4	−13.4	−16.3	−15.9	−17.5	−12.8	−16.8	−18.7	−16.1	−15.5	−16.8	−15.7
t	48.2	7.9		5.2			1.3			6.3		0.9		1.6	

[a] See footnote "a" in table A.1 for an explanation of the symbols "s," "d," and "t."
[b] Responses were coded as follows: Not important = 0, somewhat important = 50, very important = 100.

42

Table A.9. Mean values of work orientation items: 1972 and 1980 high school seniors, by selected student characteristics[a, b]

Year	All Students	Sex		Race		SES			Test score level			Program		Region	
		Male	Female	White	Minority	Low	Med	High	Low	Med	High	Academic	Non-Academic	Northeast, Central	South, West
Previous experience in area, s = 38.1															
1980	50.4	48.9	51.5	48.8	56.6	55.0	50.0	45.5	60.0	51.9	38.1	43.5	54.5	49.8	50.9
1972	36.3	36.5	36.2	35.5	40.7	38.8	36.9	32.5	45.0	36.2	29.2	31.9	39.8	36.4	36.2
d	14.1	12.4	15.3	13.3	15.9	16.2	13.1	13.0	15.0	15.7	8.9	11.6	14.7	13.4	14.7
t	37.0	3.8		3.0			3.0			5.7		4.1		1.7	
Good income in a few years, s = 33.3															
1980	67.6	69.4	65.8	66.0	73.9	70.7	67.6	63.8	74.7	68.3	59.6	63.4	70.1	66.4	68.9
1972	56.1	60.1	52.2	54.6	64.0	61.3	56.2	51.0	64.8	57.3	46.6	51.6	60.1	54.7	58.0
d	11.5	9.3	13.6	11.4	9.9	9.4	11.4	12.8	9.9	11.0	13.0	11.8	10.0	11.7	10.9
t	34.5	6.5		2.0			3.6			3.3		2.7		1.2	
Job security and permanence, s = 33.3															
1980	75.0	74.9	75.2	74.5	77.5	75.6	75.9	72.8	74.9	77.4	71.7	73.9	75.8	74.9	75.2
1972	62.5	64.4	60.1	61.5	66.2	65.7	63.1	57.1	66.3	65.2	53.9	58.9	65.1	61.4	63.3
d	12.5	10.5	15.1	13.0	11.3	9.9	12.8	15.7	8.6	12.2	17.8	15.0	10.7	13.5	11.9
t	37.5	6.9		2.2			6.2			9.8		6.5		2.4	
Important and interesting work, s = 21.2															
1980	91.9	89.7	94.2	92.4	89.9	89.9	92.2	94.0	87.1	92.9	95.0	94.7	90.2	92.3	91.5
1972	88.4	86.2	90.6	88.7	86.9	85.8	88.5	90.8	84.8	88.7	91.5	91.2	86.0	88.6	88.1
d	3.5	3.5	3.6	3.7	3.0	4.1	3.7	3.2	2.3	4.2	3.5	3.5	4.2	3.7	3.4
t	16.5	0.2		1.4			1.5			2.0		1.7		0.7	
Freedom to make own decisions, s = 30.1															
1980	79.1	78.3	79.8	78.8	80.0	78.2	78.4	81.3	79.6	79.1	78.7	79.3	79.0	78.7	79.6
1972	66.1	68.6	63.7	65.4	70.1	65.0	65.2	69.0	70.1	64.2	65.5	66.4	65.8	65.3	67.1
d	13.0	9.7	16.1	13.4	9.9	13.2	13.2	12.3	9.5	14.9	13.2	12.9	13.2	13.4	12.5
t	43.2	10.6		5.0			1.1			4.4		0.5		1.5	
Sociable, friendly people, s = 29.4															
1980	80.7	76.1	84.8	80.5	81.8	81.1	81.0	79.9	82.8	82.8	75.0	79.3	81.6	80.6	80.8
1972	74.7	68.1	81.2	73.9	78.8	77.0	74.7	72.2	79.2	75.4	69.6	73.1	75.9	74.4	75.0
d	6.0	8.0	3.6	6.6	3.0	4.1	6.3	7.7	3.6	7.4	5.4	6.2	5.8	6.2	5.8
t	20.4	7.5		5.3			4.3			2.2		0.7		0.7	

[a] See footnote "a" in table A.1 for an explanation of the symbols "s," "d," and "t."
[b] Responses were coded as follows: Not important = 0, somewhat important = 50, very important = 100.

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43

APPENDIX B

Technical Notes

APPENDIX B

TECHNICAL NOTES

Sample Design and Response Rates[1]

Both NLS-72 and HS&B employed two-stage sample designs. In the first stage, stratified disproportionate samples of schools were selected from frames consisting of public and private high schools in the 50 states and the District of Columbia which contained 12th-grade students.[2] In the second stage, simple random samples were selected from frames of seniors still attending school who could complete their secondary schooling by the end of the summer.

The NLS-72 design provided for a sample of 1,200 schools and 18 seniors per school, school size permitting. Of 1,200 schools initially selected, 21 were ineligible because they had no senior students enrolled; and 948 (80.4 percent) of the remaining 1,179 participated in the base-year survey. Of the 231 eligible schools that did not participate in the base-year survey, 95 were replaced by schools that were very similar to them based on control (public or private), geographic region, enrollment size, community type and other characteristics. This procedure increased the number of participating schools to 1,043, or 88.5 percent of the 1,179 possible. The final sample also included 18 schools which were selected to replace schools initially classified as nonparticipants, but which actually finally did take part.

Student questionnaires were completed by 16,683 (87.8 percent) of 19,001 sampled 1972 seniors in their schools.[3]

The HS&B design provided for a sample of 1,122 schools and 36 seniors (and 36 sophomores) per school, school size permitting. A total of 811 (72 percent) of the 1,122 sampled eligible schools participated in the base-year survey. Of all eligible schools that were unable or unwilling to participate, 204 were replaced with schools that matched them with regard to control, geographic region, enrollment size, community type and other characteristics. This brought the total number of participating schools to 1,015, or 90 percent of the 1,122 target. Student questionnaires were completed by 28,240 (85 percent) of the eligible sampled seniors in participating schools.

In both studies, design weights were adjusted for school-level nonresponse by appropriately distributing the design weights of nonparticipating, nonreplaced schools to participating schools within the same strata. At the student level, NLS-72 employed a weighting class adjustment procedure, which distributed the weights of nonrespondents to respondents who were like them with regard to sex, race, high school program, and other characteristics.[4] The weights of eligible nonparticipating students in participating HS&B schools were uniformly distributed among participating students in the same school.

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[1] For further information, see *National Longitudinal Study: Base Year (1972) through Fourth Follow-Up (1979) Data File Users Manual* by J. Riccobono, L. B. Henderson, G. J. Burkheimer, C. Place, and J. R. Levinsohn, a report prepared by Research Triangle Institute for NCES, June 1981; and *High School and Beyond: Sample Design Report* by M. R. Frankel, L. Kohnke, D. Buonanno, and R. Tourangeau, a report prepared by National Opinion Research Center for NCES, December 1981.

[2] The HS&B design also included schools which had sophomores but not seniors, and the selection of a sample of sophomores.

[3] The NLS-72 design permitted replacement of non-cooperating students under certain circumstances.

[4] This kind of information was available for most NLS-72 nonparticipants from information collected from their school records.

Errors in Estimating Trends

The errors of estimates from a sample survey are of two types: sampling and non-sampling. Sampling errors occur because observations are made only on a sample, not on the entire population. Non-sampling errors can be attributed to many sources: inability to obtain information about all cases in the sample (nonresponse error), definitional difficulties, differences in interpretation of questions, respondents' inability or unwillingness to provide correct information, mistakes in recording or coding data, and other errors of collection, processing, coverage, and imputation for missing data. Non-sampling errors also occur in a complete census. The accuracy of a survey result is determined by the joint effects of sampling and non-sampling errors.

This report attempts to estimate how much 1980 and 1972 high school seniors differed by comparing the results of two sample surveys: NLS-72 and HS&B. It also is useful to categorize errors in estimating such differences as either sampling errors or as non-sampling errors.

Non-Sampling Errors

Non-sampling errors generally are very difficult to identify and measure. The size of the sampling error falls as the survey sample size increases; but the size of non-sampling error does not. Hence, for large surveys, such as NLS-72 and HS&B, non-sampling error can be a large component of total error.

One of the major potential sources of non-sampling error is nonresponse bias. Nonresponse bias is a product of the nonresponse rate and the difference in means (or proportions) between respondents and nonrespondents. Investigations have found that the effect of school nonresponse was small for both surveys—less than 1 percent for most variables.[1] The magnitude of student level nonresponse bias also is relatively small. The median value of the bias in HS&B estimates due to student nonresponse was found to be less than 0.4 percentage point (Tourangeau, *et al., op. cit.*).

In estimating trends (or differences) based on results from two sample surveys, additional sources of non-sampling error arise while the need for concern about other kinds declines. Some of the major new potential sources of non-sampling error are differences between the two surveys in frame coverage, mode and time of administration, and question format and wording. If all factors like these are identical for the two surveys, errors due to such sources as nonresponse bias should be of about the same size and direction for both surveys and hence tend to cancel out or have little effect on estimates of trends.

Care was taken to define the HS&B senior cohort the same way as the 1972 senior cohort by employing identical sampling frame eligibility standards at school and student levels. NLS-72 attempted to measure and adjust for sampling frame undercoverage. The adjustment, however, did not take effect until the first follow-up survey. In HS&B, more intensive efforts were made to develop an exhaustive sampling frame of schools, and thus no attempt was made to measure and adjust for undercoverage.

Although forms were group-administered to students in their schools in both surveys, the average group size was about twice as large in the 1980 survey as in the 1972 survey; and the 1980 survey was administered somewhat earlier in the school year. Also, the order of administering the test and questionnaire was reversed in the two surveys; and NLS-72 was administered entirely by school personnel, whereas HS&B was administered primarily by contractor personnel. The 1980 questionnaires were more comprehensive than the 1972 questionnaires and took longer to complete. The order of the items within the two questionnaires was not always the same for both surveys and the order of the tests within the test battery was not the same.

Items were not always worded and formatted identically in the two surveys because of the desire to improve the quality and utility of HS&B data; and HS&B did not employ skip patterns as extensively as did NLS-72. Different procedures also were employed in editing and processing the data. School and student response rates were lower in HS&B than in NLS-72; and NLS-72 nonresponse adjustments employed in this trend study utilized selected student characteristics, whereas the HS&B nonresponse adjustments did not.

[1] *Bias Resulting from School Nonresponse: Methodology and Findings* by S. R. Williams and R. E. Folson, Jr., a report prepared for NCES by Research Triangle Institute, June 1977, and *High School and Beyond First Follow-Up (1982) Sample Design Report* by R. Tourangeau, H. McWilliams, C. Jones, M. F. Frankel, and F. O'Brien, a report being prepared for NCES by National Opinion Research Center.

The impact of any one of these factors on estimates of differences between 1972 and 1980 seniors is very difficult to quantify and the net effect of all the factors is impossible to assess.

This report not only contrasts the total senior populations of 1972 and 1980, but also contrasts subgroups defined by sex, race, and other variables to determine whether the size of the trend has been about the same for each subgroup. These subgroup contrasts for uniformity of trend can be affected by classification error. If seniors were not classified into subgroups in the same way in both surveys, the result could be the mistaken appearance of a trend-subgroup interaction when none exists, or the failure to detect an interaction when one does in fact exist. The same consequence could occur if the item nonresponse rate for the classification variable differed in the two surveys. Of course, for any serious consequence to occur, there would have to be a strong relation between misclassification or item nonresponse and the variable under consideration and also a fairly high rate of differential misclassification or item nonresponse.

Table B.1. Sample composition and unweighted and weighted frequency distribution, by selected classification variables: NLS-72 and HS&B (senior cohort)[a]

Classification variable and subgroups	1972 seniors			1980 seniors		
		Percent			Percent	
	Number	Unweighted	Weighted	Number	Unweighted	Weighted
Total sample	16,683	100.0	100.0	28,240	100.0	100.0
Sex:						
Male	8,281	49.6	49.8	12,907	45.7	46.1
Female	8,397	50.3	50.1	14,086	49.9	49.7
Missing	5	0.0	0.0	1,247	4.4	4.2
Race/ethnicity:						
Hispanic	776	4.7	3.3	3,177	11.2	6.2
Non-Hispanic						
Black	2,127	12.7	8.4	3,775	13.4	11.3
White	12,847	77.0	83.0	19,852	70.3	77.8
American Indian, Alaskan Native	189	1.1	1.0	217	0.8	0.7
Asian, other Pacific Islander	193	1.2	0.9	365	1.3	1.3
Other or missing	551	3.3	3.2	854	3.0	2.7
Curriculum (self-reported):						
Academic or college preparatory	6,767	40.6	45.4	10,532	37.3	37.4
General	5,575	33.4	31.2	10,293	36.4	36.6
Vocational	4,114	24.7	21.9	6,960	24.6	24.4
Missing	227	1.4	1.4	456	1.6	1.6
Socioeconomic status composite:						
Lowest quartile	4,827	28.9	24.4	8,409	29.8	26.7
Middle two quartiles	7,927	47.5	51.1	12,801	45.3	46.8
Highest quartile	3,863	23.2	24.2	6,180	21.9	23.8
Missing	66	0.4	0.1	850	3.0	2.7
Academic achievement composite:						
Lowest quartile	4,788	28.7	24.7	7,012	24.8	22.0
Middle two quartiles	7,000	42.0	43.9	12,195	43.2	44.0
Highest quartile	4,052	24.3	26.9	5,843	20.7	22.0
Missing	843	5.1	4.4	3,190	11.2	11.9
Region:						
Northeast	3,618	21.6	26.4	5,789	20.5	22.9
North Central	4,568	27.4	30.2	8,002	28.3	28.6
South	5,513	33.0	26.2	9,309	33.0	30.4
West	2,984	17.9	17.2	5,140	18.2	18.1
Missing	0	0	0	0	0	0

[a] Sample sizes are the number of seniors who complete a usable student questionnaire.
Note.—Sum of percentages may not always equal 100.0 due to rounding.

Table B-1 shows for each survey the weighted and unweighted percentages of seniors classified into each subgroup and of seniors who were not classifiable because of missing data. The differential response rate is negligible except for academic achievement composite and perhaps sex. Further analysis (table B-2) shows that the grade-point average of students who did not complete the test battery is similar to, although not quite as good as, students who took the tests and scored in the middle two quartiles. Thus, the different test battery response rates of the two surveys would seem to pose little threat to the validity of the analysis for trend-achievement level interactions.

Table B.2.—Weighted percentage distributions of grade average, by test score composite category: 1972 and 1980 seniors

Grade average	Test score category							
	NLS-72				HS&B			
	Low	Middle	High	Missing	Low	Middle	High	Missing
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Above B	6.5	21.9	57.1	23.8	11.9	28.1	63.2	28.0
B or C+	48.6	57.6	36.4	46.9	49.7	53.1	32.0	45.7
C or below	41.8	20.1	6.2	28.7	36.8	18.4	4.4	24.9
Missing	1.0	0.6	0.3	0.6	1.6	0.5	0.3	1.4

Note.—Details may not add to totals because of rounding.

While HS&B seniors with missing sex classification data definitely had poorer grades than average students (table B-3), the missing data percentages are so low (about 4 percent vs. less than 0.1 percent for NLS-72) that the effect on the interaction analysis should be negligible.

Table B.3.—Weighted percentage distrubution of grade averages, by sex: 1980 seniors

Grade average	Sex		
	Male	Female	Missing data
Total	100.0	100.0	100.0
Above B	25.8	39.6	15.4
B or C+	48.3	45.4	47.5
C or below	25.0	14.5	33.7
Missing	0.8	0.5	3.4

Note.—Details may not add to totals because of rounding.

Finally, it should be noted that the procedures employed to classify students by SES and achievement quartiles were only approximate and did not result in exactly 25 percent of the weighted distribution of students being classified into the lowest and highest "quartile" groups. Relatively fewer HS&B than NLS-72 students were placed in the highest SES and achievement quartiles. This should have some effect, although probably not a very large one, on the trend-SES and trend-achievement interaction analyses.

Sampling Errors

The particular sample selected for each survey is only one of a very large number of samples of the same size that could have been chosen using the same sample design. Estimates derived from the different samples would differ from each other. The deviation of a sample estimate from the average of all possible samples is called the sampling error.

The standard error of an estimate is a measure of the variation among the estimates from all possible samples of the same size, and thus is a measure of the precision with which a particular estimate approximates the average result over all samples. For a simple random sample (SRS) of size "n", the standard error of the estimate of a population percentage (p) is $100\ [(p)(1-p)]^{1/2}/(n)^{1/2}$; and the standard error of an estimated mean ($\overline{X}$) is $s/(n)^{1/2}$, where "s" is the estimated standard deviation of the variable.

Both surveys used complex two-stage stratified sample designs with higher sampling rates for some strata than for others. The overall effect of each survey design was to increase the standard errors of estimates from what they would have been for simple random samples (SRS) of the same size. The amount by which the SRS standard error must be inflated varies from one variable to the next, and generally is less for subgroups of students (e.g., males or academic program students), than for the entire population, primarily because of smaller average cluster sizes per school. For estimates of population percentages, the average multiplier of SRS standard errors to adjust for survey design effect for the total population was found to be 1.2 for NLS-72 and 1.3 for HS&B. For estimates of test-score means for the total population, the average multipliers are somewhat greater.

Tests of Significance

Standard errors of estimates of change between 1972 and 1980 are very small. For example, for the total population of seniors, the standard error of a difference between 1972 and 1980 percentages is less than three-fourths of a percentage point even after a conservative adjustment for survey design effects. Standard errors of differences between 1972 and 1980 estimates, of course, are larger for subgroups of students than for the total population. But still they generally are very small; for example, less than 1.2 percentage points for academic program students. Real differences of this magnitude rarely are meaningful; and as has been pointed out, there is a possibility that non-sampling error might produce apparent differences of this size.

The general approach taken in this study was to express the observed difference between 1980 and 1972 means or proportions in terms of standard error units. This magnitude is denoted by "t" (student's t value) in report tables. The values of "t" were calculated from weighted estimates of pooled within-group standard deviations and sample sizes based on the numbers in table B-1 adjusted downward by 5 percent for item nonresponse. (The standard deviation estimates in most instances were obtained from the error term of a weighted least-squares linear regression analysis.)

There are three major ways of taking survey design effects into account when doing tests of significance: (1) adjust "simple random sampling" standard errors by multiplying by the root design effect ("deft"), which was about 1.2 for NLS-72 and 1.6 for HS&B; (2) employ "effective" sample sizes, obtained by dividing actual sample sizes by deft; and (3) adjust tabled critical values for test statistics by multiplying them by deft. The last mentioned approach was employed in this study since it required the fewest calculations.

The critical value of "t" for a type I error rate of .001 (two-tailed test) is 3.26. A very conservative upward adjustment of 50 percent for survey design effects results in an adjusted critical t-value (.001 level) of 4.9. As a general rule, an unadjusted t-value of 5.0 was used as a cut-off point in deciding whether to bring an estimated difference to the readers attention in the text. This is a very conservative approach; but it provides assurance both that the largest trends are noted and that the observed trends are not solely due to sampling variation.

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